

Adolescents who Self-Harm:
The Role of Early Maladaptive Schemas

Louise Walker

A thesis submitted in partial fulfilment of the requirements of the
University of Lincoln for the degree of Doctor of Clinical Psychology

2014

Acknowledgements

I would primarily like to say a special thank you to Dr David Dawson for his support, guidance and encouragement throughout the research process.

I would also like to express my gratitude to Dr Kerry Beckley and Dr Nima Golijani-Moghaddam for their consultation and support, Kerry on her specialist knowledge of Schema theory, and Nima for being an SPSS guru.

To my family and friends, I cannot express my gratitude for the incredible patience, support and encouragement you have given me throughout. But more importantly thank you for supporting me to be a mum, you have given me the opportunity to keep perusing my dreams, for that Jude and I will always be grateful.

Finally, I would like to thank all of the participants who took part in this study, without you this would not have been possible.

Content page

Thesis Title Page	1
Acknowledgement.....	2
Content Page.....	3
Statement of Contribution.....	8
Thesis Abstract.....	9
Journal Article	
Journal Article Title Page.....	11
Abstract.....	12
Introduction.....	13
Definition	13
Prevalence.....	13
DSH Behaviours.....	14
Risk Factors.....	14
Functions of DSH.....	15
Remission and Treatment	16
Schema Theory.....	17
Schema Theory and Psychopathology.....	18
The Present Study.....	19
Method.....	20
Participants.....	20
Measures.....	21
Procedure.....	24
Design.....	24
Data Analysis.....	25
Results.....	25
Demographics.....	25
Prevalence.....	27
Analysis of Demographic Variables.....	27
Preliminary Analysis.....	28
Correlations between DSH and EMS's.....	29
Correlations between EMS's and Psychopathology.....	31

Hierarchical Regression.....	33
Discussion.....	35
Conflict of Interest.....	44
References.....	45
Extended Paper	
1.Extended Introduction.....	58
1.1 DSH Definition and Terminology.....	58
1.1.1 Deliberate Self-Harm Definitions.....	58
1.1.2 Deliberate Self-Harm Terminology.....	59
1.2 Prevalence.....	60
1.2.1 Prevalence in the Community.....	60
1.2.2 Prevalence by Gender.....	61
1.2.3 Theories of Female Prevalence.....	62
1.3 DSH Behaviours.....	63
1.3.1 Societal Factors – DSH and the Media.....	64
1.4 Risk Factors of Deliberate Self-Harm.....	65
1.4.1 Individual Negative Life Events and Family Adversity.....	65
1.4.2 Familial Factors.....	67
1.4.3 Psychiatric and Psychological Factors.....	69
1.5 Functions of DSH.....	70
1.5.1 Emotional Regulation.....	70
1.5.2 Self Punishment.....	72
1.5.3 DSH and Suicide.....	73
1.6 Theories and Models of Deliberate Self-Harm.....	75
1.6.1 Psychodynamic Theories.....	75
1.6.1.1 The Drive Models.....	75
1.6.1.1.1 The Affect Regulation Models.....	75
1.6.1.1.2 The Antisucide Models.....	76
1.6.1.1.3 The Sexual Models.....	77
1.6.1.1.4 The Dissociation Models.....	78
1.6.1.1.5 Critique.....	79
1.6.2 Attachment Theory.....	79

1.6.3 Behaviourism.....	82
1.6.3.1 Experiential Avoidance Model.....	82
1.6.4 Cognitive Behavioural (CBT) Model.....	85
1.7 Treatment.....	89
1.8 Schema Theory.....	91
1.8.1 Concept of an EMS.....	91
1.8.2 The Theory of EMS Development.....	92
1.8.3 Maladaptive Coping Styles.....	94
1.8.4 Schema Domain's and EMS's.....	95
1.8.5 Early Maladaptive Schema's and Adolescence.....	97
2. Method.....	101
2.1 Epistemology	101
2.2 Participants.....	101
2.2.1 Sample Size.....	101
2.2.2 Recruitment.....	102
2.2.3 Inclusion / Exclusion Criteria.....	102
2.2.4 Snowball Sampling.....	103
2.2.5 Using the Internet for Psychological Research.....	104
2.3 Measures.....	105
2.3.1 Young's Schema Questionnaire – Short Form.....	105
2.3.2 Deliberate Self-Harm Inventory.....	106
2.3.3 Brief Symptom Inventory.....	107
2.4 The Flesch-Kincaid Test.....	109
2.5 Procedure.....	109
2.5.1 Ethical Issues.....	109
2.5.2 Procedure.....	110
3. Extended Results.....	111
3.1 Additional Data.....	112
3.2 Preliminary Data Analysis.....	112
3.2.1 Transformation of Data.....	115
3.3 Supplementary Testing for Reported Analyses.....	116
3.3.1 Relationships Between DSH and EMS's.....	116
3.3.2 Relationships Between EMS's and Psychopathology.....	118

3.4 Additional Correlational Analysis.....	119
3.4.1 Relationship Between DSH and Psychopathology.....	119
3.4.2 Assumptions Between DSH Scores and the Nine BSI Symptomatology.....	119
3.5 Additional Analyses.....	121
3.5.1 Correlation Findings of DSH and the Nine BSI Symptomatology.....	121
3.6 Hierarchical Regression.....	123
3.6.1 Testing of Assumptions.....	123
4. Extended Discussion.....	127
4.1 Prevalence.....	127
4.1.1 Measures.....	128
4.1.2 DSH, Self-Cutting and Mental Health.....	129
4.2 Entitlement and Enmeshment.....	130
4.3 EMS's and Child Development.....	132
4.4 DSH and Anger.....	135
4.5 Further Clinical Implications.....	137
4.6 Further Limitations.....	139
4.7 Future Research.....	140
4.8 Critical Reflection.....	141
4.8.1 Theoretical.....	141
4.8.2 Scientific.....	142
4.8.3 Ethical.....	143
5. Extended Reference.....	144
Appendices	
Appendix A: Journal for Publication.....	187
Appendix B: Participant Information Sheet.....	187
Appendix C: Consent Form.....	191
Appendix D: Demographic Questionnaire.....	192
Appendix E: Young's Schema Questionnaire.....	193
Appendix F: Deliberate Self-Harm Inventory.....	200
Appendix G: Brief Symptom Inventory.....	201
Appendix H: Ethics Approval.....	204

Appendix I: Debrief..... 205

Statement of Contribution

Project Design

Louise Walker (supervised by David Dawson and Kerry Beckley)

Application for Ethical Approval

Louise Walker (supervised by David Dawson)

Participant Recruitment

Louise Walker

Data Collection

Louise Walker

Data Analysis

Louise Walker (supervised by David Dawson and Nima Golijani-Moghaddam)

Write up

Louise Walker (supervised by David Dawson and Kerry Beckley)

Thesis Abstract

Background: An estimated one in ten adolescents living in the community will engage in deliberately self-harming (DSH) during their lifetime. This perplexing behaviour is of growing clinical concern and appears to be increasing in prevalence, yet continues to be without definitive understanding. There are multiple theories on the underlying mechanisms of DSH, however, there is limited empirical evidence to support these theories.

The present study aimed to investigate whether Young's schema theory could provide a comprehensive framework to understand DSH in adolescents from the general community. This study aimed take a unique perspective on DSH by investigating the theorised unconscious cognitive constructs, known as Early Maladaptive Schema's (EMS's), which may underlie this behaviour. It also explored the relationship between EMS's and psychopathology within this sample.

Methodology: 252 adolescents recruited from internet forums and social networking sites completed a series of self-report questionnaires online. DSH was measured using the Deliberate Self-Harm Inventory. Early Maladaptive Schema's were measured using an age downward version of the Young's Schema Questionnaire-short form. The Brief Symptoms Inventory was used to measure psychopathology, and a demographics questionnaire was designed to gather pertinent additional information.

Results: Correlational analyses indicated positive relationships between frequency of DSH behaviours and intensity of 13 of the 15 EMS's. Despite no association found between the overall EMS score and general psychological distress, when each EMS was considered individually, relationships were found between the intensity of each of the 15 EMS's and the general measure of psychological distress. Hierarchical multiple regression, controlling for gender and general psychopathology, indicated that the Emotional Deprivation, Vulnerability to Harm, Subjugation and Self-Sacrifice EMS's accounted for a unique proportion of the variance in DSH behaviour.

Conclusions: These findings are unique in that they extend the research into both DSH and EMS's in adolescents. From the findings one could broadly conclude that, as Schema Theory states, DSH is a coping strategy used to manage unbearable memories, emotions, cognitions, and bodily sensations associated with EMS's, with positive correlations between the intensity of the EMS's and the frequency of DSH, and the intensity of the EMS's and increased psychological distress. Further, during this time the EMS's Emotional Deprivation, Vulnerability to Harm, Self-Sacrifice and Subjugation are more predictive of DSH than alternative EMS's. When comparing these findings to the wider literature, one could conclude that EMS's are unstable in adolescents, as those EMS's causing distress in an individual's adolescence may not continue to do so into their adulthood, yet the coping strategy may remain the same. This highlights the role of social, environmental and biological changes in the stability of EMS's. The pertinence of these findings to adolescents who DSH, the overlap with broader psychological symptomatology, and its relevance to clinical practice is discussed.

JOURNAL ARTICLE

Adolescents who Deliberately Self-Harm

The Role of Early Maladaptive Schemas.¹

Louise Walker^a, David Dawson^a, Kerry Beckley^b

^aTrent Doctorate in Clinical Psychology, Health, Life and Social Sciences, University of Lincoln

^bLincolnshire Partnership Foundation Trust, NHS

¹ Paper for submission to the journal 'Behaviour, Research and Therapy', see Appendix A.

Abstract

Deliberate self-harm (DSH) is a perplexing behaviour that continues to be without definitive understanding whilst increasing in prevalence. The present study aimed to investigate whether Young's schema theory constitutes a comprehensive framework to understand DSH in adolescents from the general community. Participants were 252 adolescents (77% female) recruited from internet forums and social networking sites, who completed a battery of questionnaires including demographics, the Deliberate Self-Harm Inventory, Young's Schema Questionnaire-short form and the Brief Symptoms Inventory. Correlational analyses indicated positive relationships between frequency of DSH behaviours and intensity of 13 of the 15 Early Maladaptive Schema's (EMS), and intensity of all EMS's and a general measure of psychological distress. Hierarchical multiple regression indicated that the Emotional Deprivation, Vulnerability to Harm, Subjugation and Self-Sacrifice EMS's can statistically predict

DSH. These findings are unique in that they extended the research into both DSH and EMS in adolescents. The pertinence of these findings to adolescent's who DSH, the overlap with broader psychological symptomatology, and its relevance to clinical practice is discussed.

Keywords: Deliberate self-harm, Early Maladaptive Schema, Schema Theory

Corresponding author. Louise Walker

E-mail addresses: 10197391@students.lincoln.ac.uk
College of Social Science,
Doctorate in Clinical Psychology,
1st floor, Bridge House,
University of Lincoln,
Brayford Pool,
Lincoln.
LN6 7TS

01522 886972

Introduction

Despite considerable research, deliberate self-harm (DSH) continues to be a perplexing phenomenon and a major public health concern worldwide. Predominantly, research has focused on adults in clinical populations, with less research conducted with young people in the community. Yet, research suggests that DSH commonly first occurs in adolescence (De Leo & Heller, 2004; Favazza, 1998; Favazza & Conterio, 1989), with a number of studies finding higher rates of DSH in adolescents than other populations (Briere & Gil, 1998; Zlotnick, Mattia, & Zimmerman, 1999). Within adolescent groups DSH is thought to be increasing (Cleaver, 2007; Hawton, Fagg, Simkin, Bale, & Bond, 1997), prevalence is considered to be between one in 15 (Underdown, 2009) and one in 10 (Hawton, Rodham, & Evans, 2006), with particularly high rates found amongst females.

Definition

DSH is referred to within this study as a directive behaviour that causes minor to moderate physical injury, undertaken without conscious suicidal intent that occurs in the absence of psychoses and/or organic intellectual impairment (Mangnall & Yurkovich, 2008).

[See extended paper: 1.1 DSH Definition and Terminology]

Prevalence

The true prevalence of DSH is hard to determine, in part due to the secretive nature of the act. Additionally, methodological issues pose a problem, with definitional inconsistencies and the method by which it is quantified (i.e. presentation at A&E), making data synthesis difficult. Research has found that in community samples of adolescents, hospital presentation is only reflective of a small proportion of those who DSH (Green, McGinnity, Meltzer, Ford, &

Goodman, 2005; Hawton et al., 2006; Hawton, Rodham, Evans, & Weatherall, 2002). Findings regarding prevalence within this sample have varied greatly, ranging from 13% to 66% (Hilt, Cha, & Nolen-Hoeksema, 2008; Lundh, Karim, & Quilisch, 2007). This range is indicative of the problems with accurately measuring prevalence, problems which make comparability with other studies difficult, therefore these results must be viewed with caution. These findings sit in contrast to prevalence rates of community adults, which have been estimated at 4% (Briere & Gil, 1998; Klonsky, Olthmanns, & Turkheimer, 2003).

[See extended paper: 1.2 Prevalence: Community; by Gender; Theories of Female Prevalence]

DSH Behaviours

Methods of DSH are heterogeneous, they include cutting, burning, and self-battery. Cutting has consistently been found to be the most common form of DSH amongst community adolescents, occurring in between 70 and 97% of individuals who DSH (Briere & Gil, 1998). Bjarehed and Lundh (2008) found that all DSH behaviours correlated with psychopathology. Surprisingly, their findings showed that self-cutting had the weakest correlation with psychopathology, although suggest a possible contagion effect caused by the media.

[See extended paper: 1.3 DSH Behaviours; Societal Factors: DSH and the Media]

Risk Factors

A body of research has examined the risk factors associated with DSH, most suggesting childhood experiences within the context of the family as the greatest risk factors (Suyemoto, 1998). Abuse, neglect, separation and

abandonment are most commonly reported (Gratz, Conrad, & Roemer, 2002; O'Connor, Rasmussen, & Hawton, 2009; Zlotnick, Shea, Pearlstein, Simpson, Costello, & Begin, 1996). Outside of the home, social factors have additionally been associated with DSH development, including bullying, boyfriend/girlfriend troubles, exam stress, and worries regarding sexual orientation (De Leo & Heller, 2004; Hawton et al., 2002; O'Connor et al., 2009).

Psychological risk factors, particularly depression, aggression and anxiety (Brunner, Parzer, Haffner, Rainer, Steen, Roos, Klett, et al., 2007; Fliege, Lee, Grimm, & Klapp, 2009; Resch, Parzer, & Brunner, 2008) have been associated with DSH in adolescents. Anxiety was found to be a particular risk factor amongst community samples in comparison to clinical groups. Additionally, significantly higher levels of hopelessness, dissociation, impulsivity, somatic complaints, and dysphoria, body confidence and lower self-esteem have been found when compared to non-self-harming adolescents (Darche, 1990; Gratz et al. 2002; Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Hawton, Rodham, & Evans, 2003). Guertin et al. (2001) found that loneliness was the only significant predictor of DSH in adolescence and it increased the likelihood of engaging in DSH fivefold. However, Guertin et al.'s (2001) findings may include some crossover with attempted suicide. The data came from A&E presentation following overdose, categorisation was self-reported, yet reporting a suicide attempt to mental health services may carry considerably more consequences than DSH, making the results difficult to interpret.

[See extended paper: 1.4 Risk Factors of DSH]

Functions of DSH

Functionally, DSH is considered to be either a way of expressing distress (communicative function) or coping with the distress (problem-solving function) (Claes & Vandereycken, 2007). For the individual, the function is considered to be wrapped up in contextual, intrapsychic and interpersonal factors, which can

change from moment to moment. Each individual has an array of behaviours available to fulfil their needs which are specific to numerous variables. This could explain the multiple functions that DSH is theorised to simultaneously perform (Suyemoto, 1998).

Multiple theories have been put forward to help understand DSH. Each model presents a conceptual framework, which has distinction and commonality with other models, through which the manifestation and functions of DSH can be understood. The function most commonly agreed on, both conceptually and empirically, is that DSH somehow helps the individual regulate, manage or escape emotions (Chapman, Gratz, & Brown, 2006). In a review of the empirical research, including all studies reporting on the functions of DSH, Klonsky (2007) extrapolated seven functions of DSH: to regulate emotion, anti-dissociation, anti-suicide, assert interpersonal boundaries, assert interpersonal-influence, self-punishment and sensation-seeking. However, this paper is potentially over inclusive, making the assumption that DSH for both adults and adolescents from clinical and non-clinical populations, serves the same function, whereas functions within each group may vary considerably.

[See extended paper: 1.5 Functions of DSH; 1.6 Theories and Models of DSH]

Remission and Treatment

Under-reported in the literature are the rates and reasons of remission. In terms of natural remission, research has found that 40% of adolescents cease self-harming within 1 year of starting and 80% within 5 years (Whitlock, Eckenrode, & Silverman, 2006). The most frequent reason for cessation was found to be the realisation that DSH was futile and damaging and/or it hurt other people (Young, van Beinum, Sweeting, & West, 2007). The least common explanation for cessation of DSH was due to external help (i.e. professionals, friends). In support of this, Hawton, Arensman, Townsend, Bremner, Feldman,

Goldney, Gunnell, et al. (1998), in a review of the literature, indicated that there is insufficient evidence to identify any effective treatments for DSH. More recently, Hawton, Saunders, and O'Connor (2012) maintained this stance, evidenced by a lack of trials for effective psychological intervention for DSH.

[See extended paper: 1.7 Treatment]

Schema Theory

DSH is a perplexing and dynamic phenomena that still maintains a level of ambiguity, particularly in adolescent community populations. Despite the growing body of literature addressing the characteristics of DSH, little research has explored the assumptions and beliefs that may underlie DSH in adolescents (13 to 18 years). Cognitive theory postulates that our assumptions and beliefs/schemas can greatly affect our emotions, interpretations, perceptions and behaviours (Beck, Emery, & Greenberg, 1985). Jeffrey Young elaborated on the concept of core beliefs with, what he termed, Early Maladaptive Schemas (EMS's). Young theorised that EMS's are established during childhood/adolescence, born from toxic childhood experiences with relevant others (Young, 1990). The dysfunctional EMS's and associated maladaptive coping strategies are thought to develop when core childhood needs go unmet, such as secure attachments or freedom to express emotions. Young distinguished 18 EMS's, each made up of unique memories, emotions, cognitions, and bodily sensations. He theorised that during stressful life events, these EMS's and coping strategies are activated making the individual vulnerable to developing psychological problems, making it a cognitive diathesis-stress perspective of psychopathology. However, Young's theory conceptually appears to mirror that of Attachment Theory (Bowlby, 1969), which similarly theorises that the early child/caregiver relationship has a tremendous impact on emotional, behavioural, cognitive, physical and social development. Further, disruptions to that relationship (i.e. abuse, neglect) can lead to psychopathology (Dwivedi, & Harper, 2004). Whilst Bowlby's (1969)

Attachment theory refers to an individual's general relational style, Young's distinguishment of 18 unconscious constructs (EMS's) leaves this theory unfalsifiable.

[See extended paper: 1.8 Schema Theory: Concept of an EMS; Maladaptive Coping Styles; Schema Domains and EMS's]

Schema Theory and Psychopathology

Young's model of psychopathology in adolescent research is still in its infancy (Van Vlierberghe, Braet, Bosmans, Rosseel, & Bogels, 2010), with few studies having directly investigated the theory that EMS's are formed during childhood. Cukor (2004) investigated the links between retrospectively perceived parental rearing styles and EMS's. Interestingly, results indicated that poor parenting styles were associated with the presence of EMS's. This lends support to Young's (1990) theory that EMS's develop in poor family environments, and further make the individual vulnerable to psychological disorder. However, the retrospective nature of Cukor's methodology leaves it open to selection and information bias. Further, how one quantifies good/bad parenting is extremely subjective. Therefore, caution must be exercised when interpreting the results of Cukor's study.

[See extended paper: 1.8 The theory of EMS development]

Much of the research has investigated the validity of the Young Schema Questionnaire-short form (YSQ-S, Young, 1998) in adolescent samples. Results have been positive and have demonstrated that EMS's are measurable in non-clinical adolescents (Schmidt, Joiner, Young, & Telch, 1995; Van Vlierberghe et al., 2010). The YSQ-S has additionally had some success in identifying underlying EMS's in various types of psychopathology in

adolescents, such as eating disorders (Muris, 2006; Turner, Rose, & Cooper, 2005), anxiety and depression (Muris, 2006; van Vlierberghe et al., 2010; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002), conduct disorder (van Vlierberghe et al., 2010), paranoia (Welburn et al., 2002), disruptive behaviour and substance misuse (Muris, 2006). However, comparisons between studies highlight a great deal of variability, as each study found differentially associated EMS's for each symptomatology that were not consistent between studies, nonetheless some overlap was seen. The findings lend some support to Young's theory, firstly in that EMS's relate to psychopathology and secondly, EMS's originate in childhood.

[See extended paper: 1.8 EMS's and Adolescents]

The Present Study

Given the above that DSH continues to be a perplexing behaviour and that Schema theory shows some potential in identifying the cognitive structures underlying psychopathology, the present study investigated whether EMS's can statistically predict DSH. Only one other study has examined the EMS's of individuals who DSH. Castille, Prout, Marczyk, Shmidheiser, Yoder, & Howlett (2007) compared a sample of 15 to 35 year old self-harmers with non-self-harmers, and found four EMS's differentiated the groups: Emotional Deprivation, Mistrust/Abuse, Social Isolation/Alienation, and Insufficient Self-Control/Self-Discipline. Additionally, they only found an association between DSH frequency and Social Isolation/Alienation.

Additionally, this study aims to investigate whether associations can be made between the intensity² of EMS's and frequency of DSH, and the intensity of EMS's and psychopathology within an adolescent community sample. The research questions are: Is there an association between greater intensity of

² "Intensity" relates to a higher score on the YSQ-S, see method section.

EMS's and severity of DSH? Is there an association between greater intensity of EMS and psychopathology? Can EMS's predict DSH?

Method

Participants

Three hundred and thirty-six adolescents, 13 to 18 years old³, were recruited via internet web forums and social networking sites. One hundred and eleven questionnaires were discarded due to missing data, leaving 252 participants (69%). The sample consisted of 193 females (77%) and 59 males (23%), with a mean age of 16.42 (SD = 1.63). In the main participants were British (63%), Caucasian (87%) and lived with both parents (48%).

Participants were recruited via internet forums and social networking sites set up for teenagers. The forums approached were either generic sites, which covered a wide variety of interests including mental health, or forums specifically for teenagers with mental health issues including DSH (e.g. teenhut.net, ourteennetwork.com, forteensbyteens.com). Accounts were set up on social networking sites (i.e. Facebook and Twitter) and in order to find the largest audience, snowball sampling was utilised. The recruitment procedure differed slightly from one media to another, however, the overarching recruitment process was as follows: Permission was gained from the administrator (if necessary), then a message was left on the site inviting people to take part in the research, followed by: a brief explanation of the research, what was involved in taking part, how long it would take, the optional prize draw for participation, and the SurveyGizmo link. Once in the survey participants were presented with details of the research, how long participation would take, what was involved, what would happen to the data, any risks involved, information regarding withdrawing from the study, recommendation to think about participation, researchers contact details and a consent statement (see

³ The World Health Organisation defines adolescence as aged 12-18. Taking into account feedback from the University of Lincoln ethics committee and the NSPCC definition, the present study defined adolescence as 13-18 years.

appendix B, C), in line with the BPS “Guidelines for Ethical Practice in Psychological Research Online” (2007).

[See extended paper: 2.1 Epistemology; 2.2 Participants: Sample size, Recruitment, Inclusion / Exclusion criteria, Snowball sampling, Using the internet for research]

Measures

Demographics

Demographic information included age, gender, nationality, race and religion. Additional items included school attendance, living situation and whether or not suicide had been attempted at any time (appendix D). This information was considered useful in describing this sample and further enabled comparisons to be made to the findings of similar research. This information was also useful in controlling for some of these basic factors in secondary analysis. Information that was personally identifying was not collected to protect anonymity and confidentiality.

Young Schema Questionnaire - Short Form (YSQ-S; Young, 1998) (Appendix E).

The YSQ-S (Young, 1998) is a short version of the YSQ-Long version. The long version was designed to measure 16 EMS's (Approval Seeking/Recognition Seeking and Punitiveness have since been added), whilst the short form only includes the items which most heavily loaded onto 15 factors (of the original 16 proposed) (Schmidt et al., 1995). The YSQ-S is a self-report questionnaire comprised of 75 items, each item relates to one of 15 EMS's as identified by Young, Klosko, and Weishaar (2003). Each EMS is represented by five statements, each statement is phrased as a negative belief regarding the self and one's relationships with others, an example being "I worry that people I feel close to will leave me or abandon me" and "When I feel someone I care for

pulling away from me, I get desperate” (Abandonment EMS). Each item is rated using a 6-point Likert scale, ranging from 1= “completely untrue of me” to 6 = “describes me perfectly”.

In adolescent samples the YSQ-S has demonstrated adequate test–retest reliability, (coefficients ranging from .50 to .82) and internal consistency (alpha coefficients ranging from .83 to .96) (Schmidt et al., 1995). Within the present study all participants completed a version of the YSQ-S with adaptations to the language, making it suitable for their age group (see appendix E).

In the present study the YSQ-S was scored in two ways, firstly a total YSQ-S score was obtained by summing all scores (Turner et al., 2005). Secondly, the mean score of the five statements relating to each EMS was utilised, a higher score (range = 1-6) representing a more intense, maladaptive core belief, with a score of four or above considered an endorsement of a dysfunctional core belief. The latter method is the preferred choice in research studies (Lee, Taylor & Dunn, 1999, Schmidt et al., 1995; Stopa, Thorne, Waters, & Preston, 2001).

Deliberate Self-Harm Inventory-Short Version (DSHI-S) (Appendix F)

DSHI-S (Gratz, 2001; Lundh et al., 2007) is an age downward adaptation of the DSHI (Gratz, 2001). The DSHI is a behaviourally based tool which assesses for DSH in adult and adolescent populations. Gratz (2001) reported a reliability index of (Cronbach’s alpha) .83 and a good test-retest coefficient of .68. Further, the DSHI was found to be positively and moderately correlated with other measures of DSH (Gratz, 2001).

It consists of 16 questions which assess the presence and frequency of a number of self-harming behaviours, example questions being “Have you ever

intentionally burned yourself with a cigarette?” and “Have you ever intentionally broken your own bones?”. Each item is rated by participants response, with one of four possible options, “0=never”, “1=once”, “2=more than once”, or “3=many times”, to the corresponding self-harm behaviour.

The DSHI-S can be scored in two ways: A dichotomous self-harm variable can be utilised by assigning a score of “1” to participants who answer yes to any of the items on the DSHI, and a “0” to all other participants. Secondly, a continuous variable, which measured frequency of DSH, can be created by summing participant’s scores on each of the frequency items (Gratz et al., 2002; Gratz & Gunderson, 2006).

Brief Symptom Inventory (BSI) (Appendix G)

The BSI (Derogatis, 1993) is designed to measure general psychopathology in adults and adolescents. It is made up of 53 questions, for example “how much are you distressed by: “Nervousness or shakiness inside” and “Getting into frequent arguments”. Each question is rated on a five-point Likert scale of distress ranging from 0 (not at all) to 4 (extremely). Higher scores on each subscale indicate a greater experience of the symptom. Nine primary symptom dimensions: anxiety, depression, hostility, interpersonal sensitivity, obsession-compulsion, paranoid ideation, phobic anxiety, psychoticism, somatisation and three global indices of distress: Global Severity Index (GSI), Positive-Symptom Distress Index (PSDI), and Positive-Symptom Total (PST) are included. The scales have acceptable internal consistency and test-retest reliability (Derogatis & Melisaratos, 1983). The Global Severity Index (GSI) has been observed to have excellent internal consistency ($\alpha = .98$).

[See extended paper: 2.3 Measures: YSQ-S, DSHI-S, BSI; 2.4 Flesch-Kincaid Test]

Procedure

This research was approved by the Ethics Committee at the University of Lincoln on the 15th September 2011 (Appendix H). Following the recruitment procedure (as outlined), participants were presented with a consent statement and box that needed to be checked in order for them to continue, anonymity and confidentiality assured. It was also stated that due to the anonymity, participants could only withdraw from the study if a password was supplied to enable identification of their data. The questionnaire were presented in the following order: demographics, DSHI-S, YSQ-S and BSI, all questions on one page needed to be completed to enable progression through the survey. Intermittently, pages giving encouragements and details of progress were displayed. The last page of the survey included debrief information, for example, numbers to call or websites to access if they felt negatively affected (Appendix I). Additionally, there was information regarding the optional prize draw, it was made clear that their email address would not be linked to their questionnaires in order to maintain anonymity. The time taken to complete the survey was approximately 45 minutes.

[See extended paper: 2.5 Procedure: Ethical Issues, Procedure]

Design

The initial design of the study was quasi-experimental, aiming to compare self-harmers and non-self-harmers, in a cross-sectional, independent measures design. At the end of the data collection period it became apparent that only a very small percentage of the participants indicated they had not self-harmed. A second period of data collection was undertaken via social networking sites, asking explicitly for non-self-harmers to take part. Almost 50% of the new recruits identified as having self-harmed. Due to the control group being too small to use, a different design was utilised. The new design, which was cross-sectional and quasi-experimental, considered if EMS's can be used to statistically predict DSH.

Data Analysis

All analyses were conducted using SPSS version 19.0 (SPSS Inc., Chicago, IL, USA). In order to make optimum use of the data collected, this study included all cases with no missing data for the variable involved.

Results

Demographics

Three hundred and sixty-three participants showed an interest in the survey via opening it online. 111 people did not complete any of the information, the remaining 252 participants completed varying amounts of the survey, all of which completed the demographic questionnaire. Table 1 details the demographic information gathered. In summary, the demographic information collected found that the largest proportion of the sample were white (87.8%, $n=252$), female (76.6%, $n=252$), living in the UK (63.6%, $n=252$) with both parents (47.6%, $n=252$) and attending school as required (71.4%, $n=252$). No differences were noted between those who did and did not complete in terms of gender ($\chi^2(1, n=252) = .114, ns$) or mean age. However, there was a small but significant difference between self-harmers and non-self-harmers who did/did not complete ($\chi^2(1, n=218) = 5.58, p < 0.18, \phi = -.175$), with 71% of those who did not complete being self-harmers.

Table 1.

Results of the Demographic Information

N=252	
Gender (%)	
Females	193 (76.6)
Males	59 (23.4)
Mean Age (SD)	16.42 (1.63)

No. in Family (SD)	4.01 (1.30)
School Attendance (%)	
Attend	180 (71.4)
Left	44 (17.5)
Sometimes	20 (7.9)
Home Tutored	6 (2.4)
Do Not Attend	2(.8)
Family Situation (%)	
Both Parents	120 (47.6)
Single Parent	72 (28.6)
One Parent and Step Parent	35 (13.9)
Adopted / Fostered	5 (2)
Other	20 (7.9)
Ethnicity (%)	
White	221 (87.8)
Black	7 (2.8)
Asian	8 (3.2)
Other	11 (4.4)
Religion (%)	
Christian	96 (38.1)
Jewish	3 (1.2)
Muslim	4 (1.6)
Buddhist	4 (1.6)
Hindu	2 (0.8)
Other	13 (5.2)
None	125 (49.6)
Decline	5 (2.0)
Country (%)	
United Kingdom	160 (63.6)
Australia	5 (2)
Canada	10 (4.0)
America	51 (20.2)
Other	26(10.2)
Suicide Attempt (%)	
Yes	76 (30.2)
No	176 (69.8)

Prevalence

Two hundred and eighteen participants completed the DSHI-S. 83.5% (n=182) reported engaging in one or more acts of DSH, 81.3% (n=148) of which were female, which represented a significant difference in gender ($\chi^2(1, n=218) = 14.6, p = .001, \phi = -.273$). The most common form of DSH reported was self-cutting (65.6%), closely followed by severe scratching (63.8%), and stopping wounds from healing (56%). Less frequently reported behaviours were dripping acid onto one's skin (10.1%), rubbing bleach or oven cleaner onto the skin (8.7%), and breaking your own bones (5.5%). Of note is that 20.2% of the participants reported having self-harmed so severely that it resulted in hospitalisation or medical intervention. Interestingly, question 15 gave participants the opportunity to name any DSH they had engaged in that was not mentioned within the inventory, contrary to findings in the literature, which has found self-poisoning to be prominent (De Leo & Heller, 2004; Hawton et al., 2002), only 4.1% reported DSH via self-poisoning. Ten boys and 54 girls reported engaging in DSH behaviours other than those explicitly asked about in the DSHI-S. Two of the more conspicuous examples highlighted were "electrocution" and "strangulation".

Analysis of Demographic Variables

Analyses were carried out to test if any of the demographic variables related to the variables of interest in planned analyses. Based on the literature available, only the variables which could have had a potential influence were tested⁴.

A categorical variable was created for the presence or absence of DSH (0=absent 1=present). A significant association was found between DSH and gender ($\chi^2(1, n=218) = 14.6, p = .001, \phi = -.273$). In assessing an association between gender and psychopathology, a categorical variable (0=absent 1=present) was created using the GSI of the Brief Symptoms Inventory cut off

⁴ Only DSH and GSI were included in analyses, as no literature is available with regard to EMS's and gender or age specificity in adolescence.

score (63) for the presents or absence of clinical level psychopathology, no association was found ($\chi^2(2, n=252) = 4.16, p = ns$).

No significant associations were found between DSH and age ($\chi^2(5, n=218) = 6.06, p = ns$), or GSI and age ($\chi^2(10, n=251) = 12.76, p = ns$). No other demographic variable were considered to have a theoretic basis for testing.

[See extended paper: 3.1 Additional data]

Preliminary analysis

Preliminary checks were performed on the scores of the DSHI-S, YSQ-S and BSI to check for violations of the assumptions of normality, linearity and homoscedasticity. The data was found to violate these assumptions, nonparametric Spearman rho correlations were therefore used for the analyses. Univariate outliers were checked for accuracy of data entry, and found to be considered part of the intended sample as all were within the parameters of the measures used. To check for their potential impact, 5% trimmed means were checked, the differences between the means were not considered different from the remaining distribution, all cases were retained.

Correlation coefficients were computed to determine, firstly, the relationships between DSH frequency (as measured by the DSHI-S total score) and intensity of each of the 15 EMS's (as measured by the YSQ-S, range 0 to 6, higher scores relating to higher intensity i.e. 4 and above), and secondly, the relationship between EMS intensity and general psychopathology (as measured by the GSI).

[See extended paper: 3.2 Preliminary data analysis; Transforming the data]

Correlations between DSH and EMS's

Table 2 shows the correlations between DSH frequency and each of the EMS's. Out of the 15 EMS's tested, seven were most strongly related to DSH frequency, large positive correlations were demonstrated for: Defectiveness and Shame ($r = .623$, $n = 188$, $p < .01$), Emotional Deprivation ($r = .591$, $n = 198$, $p < .01$), Vulnerability to Harm ($r = .567$, $n = 183$, $p < .01$), Social Isolation/Alienation ($r = .555$, $n = 191$, $p < .01$), Mistrust/Abuse ($r = .533$, $n = 191$, $p < .01$), Abandonment ($r = .527$, $n = 194$, $p < .01$), and Dependence Incompetence ($r = .522$, $n = 187$, $p < .01$). Squared correlation coefficients indicate that these 7 EMS's individually explain between 27% to 39% of the variance within the total DSH variable. A moderate correlation was found with five of the EMS's: Failure to Achieve ($r = .486$, $n = 187$, $p < .01$), Subjugation ($r = .480$, $n = 179$, $p < .01$), Emotional Inhibition ($r = .418$, $n = 178$, $p < .01$), Self-Sacrifice ($r = .407$, $n = 178$, $p < .01$), and Insufficient Self-Control ($r = .374$, $n = 175$, $p < .01$). Unrelenting Standards represented a small correlation ($r = .152$, $n = 183$, $p < .043$), whilst Entitlement ($r = .116$, $n = 176$, ns) and Enmeshment ($r = .053$, $n = 182$, ns) did not correlate. These findings sit in contrast to those of Castille et al. (2007) who found only Social Isolation/Alienation to have a relationship with DSH frequency ($r = .724$, $p < .001$). Castille et al.'s (2007) sample was made up of adult students and service users, with a mean age of 19 ($SD 3.29$, Range 15 to 35 years).

[See extended paper: 3.3 Supplementary testing for reported analysis]

Table 2.

Correlations between DSH total score and each of the 15 EMS's

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. DSH																
2. Insufficient-Self Control	.37**															
3. Entitlement	.12	.26**														
4. Unrelenting Standards	.15*	-.00	.20**													
5. Emotional Inhibition	.42**	.46**	.17*	.24**												
6. Self-Sacrifice	.41**	.25**	.19*	.40**	.24**											
7. Subjugation	.48**	.53**	.13	.17*	.56**	.48**										
8. Enmeshment	.053	.25**	.30**	.24**	.20**	.26**	.34**									
9. Vulnerability	.57**	.52**	.23**	.19*	.50**	.41**	.61**	.29**								
10. Dependence/Incompetence	.53**	.54**	.17*	.08	.49**	.36**	.65**	.25**	.63**							
11. Failure to Achieve	.49**	.42**	.02	-.01	.34**	.37**	.58**	.13	.51**	.60**						
12. Defectiveness/Shame	.62**	.45**	.02	.19*	.62**	.36**	.69**	.09	.59**	.66**	.61**					
13. Social Isolation	.56**	.40**	.15	.29**	.56**	.30**	.56**	.25**	.49**	.50**	.45**	.66**				
14. Mistrust Abuse	.53**	.48**	.17*	.19**	.57**	.42**	.52**	.17*	.58**	.52**	.51**	.66**	.56**			
15. Abandonment	.53**	.40**	.11	.26**	.41**	.49**	.60**	.23**	.57**	.57**	.53**	.65**	.52**	.67**		
16. Emotional Deprivation	.59**	.44**	.09	.19*	.56**	.34**	.65**	.01	.46**	.55**	.50**	.74**	.63**	.61**	.58**	

Note * $p < .05$, ** $p < .001$

Correlations between EMS's and General Psychopathology (GSI)

The YSQ-S total score (sum of raw scores) showed no relationship with the GSI ($r = -.02$, ns). However, when taken individually, relationships were found between each of the 15 EMS's and the GSI, as shown in Table 3. Whilst all correlations were statistically significant the strength of the relationships varied greatly, ranging from 0.212 to 0.731. Squared correlation coefficients on individual EMS scores indicate that between 4.5% (Entitlement and Unrelenting Standards) to 53.4% (Vulnerability to Harm) of the variance is explained. The EMS's Vulnerability to Harm ($r = .731$, $n = 169$, $p < .01$) and Defectiveness and Shame ($r = .730$, $n = 169$, $p < .01$) had particularly strong relationships with psychopathology, explaining 53.4% and 53.3% of the variance respectively of the GSI variable.

Table 3.

Correlations between general psychopathology (GSI) and each of the 15 EMS's

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Global Severity Index																
2. Insufficient Self-Control	.49**															
3. Entitlement	.21**	.26**														
4. Unrelenting Standards	.21**	-.00	.20**													
5. Emotional Inhibition	.61**	.46**	.17*	.24**												
6. Self-Sacrifice	.43**	.25**	.19*	.35**	.24**											
7. Subjugation	.68**	.53**	.13	.17*	.56**	.48**										
8. Enmeshment	.25**	.25**	.30**	.24**	.20**	.26**	.34**									
9. Vulnerability to Harm	.73**	.52**	.23**	.19*	.50**	.41**	.61**	.30**								
10. Dependence/Incompetence	.70**	.54**	.17*	.08	.49**	.36**	.65**	.25**	.63**							
11. Failure to Achieve	.51**	.42**	.02	-.02	.34**	.37**	.58**	.13	.51**	.60**						
12. Defectiveness/Shame	.73**	.45**	.02	.19*	.62**	.36**	.69**	.09	.59**	.66**	.61**					
13. Social Isolation	.64**	.40**	.15	.29**	.56**	.30**	.56**	.25**	.49**	.51**	.45**	.66**				
14. Mistrust Abuse	.64**	.40**	.15	.29**	.56**	.30**	.5	.17*	.58**	.52**	.51**	.66**	.56**			
15. Abandonment	.61**	.40**	.11	.26**	.41**	.49**	.60**	.23**	.57**	.57**	.53**	.65**	.52**	.67**		
16. Emotional Deprivation	.65**	.44**	.09	.19*	.56**	.34**	.65**	.01	.46**	.55**	.50**	.74**	.63**	.61**	.58**	

* $p < .05$, ** $p < .001$

Hierarchical Regression

Hierarchical multiple regression was performed to investigate the ability of EMS's to statistically predict DSH behaviour, after controlling for gender and psychopathology. Preliminary analyses were conducted, from which the residuals were considered to be within range. Any scores identified as being potential outliers were checked, but were considered to be within the parameters of the expected questionnaire scores. Additionally, the correlations amongst the predictor variables (EMS and GSI) included in the study were examined, correlations were weak to strong, ranging between $r = .15$, $p < .05$ and $r = .73$, $p < .001$. This indicated that multicollinearity was possibly a problem (see Tabachnick & Fidell, 2007). However, checked against a correlation of .80 (Field, 2006) and a Variance Inflation Factor less than 10 (Myers, 1990), no individual variable violated the assumption of multicollinearity. Most predictor variables were statistically correlated with DSH, which indicated that the data was suitably correlated with the dependent variable for examination by multiple linear regression to be reliably undertaken. The EMS's Enmeshment and Entitlement did not significantly correlate with DSH, likely due to an accumulative effect of shared variance between variables, so were excluded.

The predictors were entered into the model in three steps, the step at which each predictor was entered was based on the relevant research (Field, 2006). Gender was entered in the first step. The DSH research has consistently highlighted being female as a considerable risk factor (e.g. De Leo et al. 2004; Hawton et al., 2002), with only a limited number of studies identifying no difference in gender (Hilt et al. 2008). This model was statistically significant $F(1, 167) = 5.22$; $p < .024$ and explained 1% of variance in DSH (Table 4). The measure of psychopathology was entered at Step 2. DSH has been associated with a wide variety of psychopathology and overall findings have shown an association between DSH and higher levels of symptomatology when compared to non-DSH groups (e.g. Guertin et al., 2001; Laye-Gindhu & Schonert-Reichl, 2005). It should be noted that many papers fail to report if the levels of distress were considered to be clinically significant. The total variance explained by the

model as a whole was 21.5% ($F(2, 166) = 71.95; p < .001$). Finally, the new predictors, being the 13 relevant EMS's, were all entered at the third step (Field, 2006). The introduction of 13 EMS's explained an additional 31.6% of the variance in DSH behaviour ($R^2 \text{ Change} = .097; F(15, 153) = 13.07; p < .001$). In the final model four out of the thirteen EMS predictor variables were statistically significant, with Emotional Deprivation ($\beta = .26, p < .004$), Vulnerability to Harm ($\beta = .18, p < .01$), Subjugation ($\beta = -.23, p < .01$) and Self-Sacrifice ($\beta = .19, p < .01$) recording the highest Beta values.

Table 4.

Hierarchical Regression for 13 EMS's predicting DSH, controlling for gender and psychopathology.

	B	T	P	R^2	F	P
<u>Step 1</u>				.030	5.22	.024
Constant		14.83	.001			
Gender	-.174	-2.28	.024			
<u>Step 2</u>				.464	71.95	.001
Constant		-6.86	.001			
Gender	-.014	-2.37	Ns			
GSI	.678	11.60	.001			
<u>Step 3</u>				.562	13.07	.001
Constant		-4.94	.001			
Gender	.037	.641	Ns			
GSI	.429	4.07	.001			
ED	.260	2.93	.004			
AB	-.064	-.768	Ns			
MA	-.032	-.360	Ns			
SI	.082	1.00	Ns			
DS	.122	1.15	Ns			

Table 4. Continued

FA	.079	1.00	<i>Ns</i>
DI	.020	.232	<i>Ns</i>
VH	.181	2.09	.038
SB	-.227	-2.51	.013
SS	.192	2.74	.007
EI	-.116	-1.48	<i>ns</i>
US	-.050	-.782	<i>ns</i>
ISC	-.038	-.536	<i>ns</i>

Note: GSI = Global Severity Index, ED = Emotional Deprivation, AB = Abandonment, MA = Mistrust Abuse, SI = Social Isolation, DS = Defectiveness / Shame, FA = Failure to Achieve, DI = Dependence / Incompetence, VH = Vulnerability to Harm, SB = Subjugation, SS = Self-Sacrifice, EI = Emotional Inhibition, US = Unrelenting Standards, ISC = Insufficient Self-Control.

[See extended paper: 3.4 Additional Correlational Analyses; 3.5 Additional Analyses; 3.6 Hierarchical Regression]

Discussion

The present study was unique in that it explored the relationships between DSH and EMS's in a community sample of adolescents, of which no similar study was identified. The study had three aims. The first was to see if there was an association between greater intensity of EMS's and frequency of DSH, the second was to see if there was an association between greater intensity of EMS's and psychopathology. The final aim was to explore whether EMS's could statistically predict DSH. The main results of the study can be catalogued as follows. Firstly, DSH frequency was indeed associated with the presence of a broad range of EMS's. Secondly, psychopathology was found to be associated with all the EMS's to a greater or lesser extent. Finally, the four EMS's Emotional Deprivation, Vulnerability to Harm, Subjugation and Self-

Sacrifice accounted for a unique proportion of the variance in DSH behaviour when controlling for gender and psychopathology.

The present study found DSH to be extremely prevalent amongst adolescents, reported by 83.5% of this community sample. This finding was considerably higher than reported in other studies of non-clinical adolescent samples i.e. 42% (Cerutti, Manca, Presaghi, & Gratz, 2011) and 66% (Lundh et al., 2007), but consistent with overall findings in the literature that many adolescents in the general population engage in DSH (Nock & Prinstein, 2004; Ross & Heath, 2002). The high prevalence in this study could in-part be considered a result of the self-selecting nature of the recruitment process, a representation of the high levels of adolescents who feel able to disclose DSH when anonymity is assured, or due to the use of the DSHI-S (Gratz, 2001; Lundh et al., 2007). This instrument explicitly asks about a large number of different DSH behaviours, potentially cuing the memory. In contrast, research that has used a single question to ascertain DSH (e.g. Hawton et al., 2002, De Leo & Heller, 2004), has reported lower prevalence rates than research utilising multiple questions (e.g. Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007, Lundh et al., 2007). Interestingly, Ross and Heath (2002), in a study of DSH amongst adolescents, found DSH prevalence to be 20.4% according to the results of a questionnaire, whilst when the same participants were interviewed, a total of 13.9% of the participants were categorised as having actually self-harmed according to their definition. These findings were due to some adolescents responding positively to having self-harmed as they felt they had done so mentally or undertaken risky behaviour, which despite the adolescent stating it was DSH, were discounted.

In line with the literature a higher prevalence of females reported DSH (e.g. Brunner et al., 2007; De Leo & Heller, 2004), with self-cutting being most commonly endorsed (De Leo & Heller, 2004; Hawton et al., 2003). Bjarehed and Lundh (2008) reported self-cutting to be more prevalent amongst females,

and further the DSH behaviour least associated with psychopathology. Interestingly, the present study found only 58% of those who reported DSH to have clinical levels of distress.

[See extended paper: 4.1 Prevalence; Measures; DSH, self-cutting and mental health]

In terms of the first aim of this study, the results demonstrated that there is a relationship between DSH frequency and intensity of EMS's, with positive correlations found between all but two of the 15 EMS's (Enmeshment and Entitlement). From a Schema theory perspective, these correlational findings should lead to the hypothesis that the EMS's are the cause and DSH is the effect. However, due to the cross-sectional methodology, no such causality can be assumed. For example, one could postulate that DSH is causal, and results in a person feeling fundamentally unacceptable to others (Defectiveness/Shame). However, Schema theory postulates that such behaviour is reinforcing, the cumulative effect of engaging in DSH strengthening the schema, suggesting a cyclical as opposed to linear relationship. Further, it is this cumulative effect that takes the behaviour into adult psychopathology (Young, 1990).

Alternatively, in a review of the literature, Faye (1995) concluded that DSH is a highly addictive behaviour, particularly the reinforcing aspects of its tension relieving properties. The positive reinforcement model posits that the endogenous opioid system is stimulated through DSH, producing a positively reinforcing elevation in mood. Over time the self-harmer becomes tolerant to the mood elevating affect of the opioid release, increasing the need to engage in more frequent and/or more severe DSH to achieve the same level of mood elevation (Yates, 2004). The negative reinforcement model hypothesises that an individual is overwhelmed by the unpleasant state of arousal and experiences the urge to escape from it, DSH reduces or eliminates the

emotional arousal, thereby negatively reinforcing DSH. The negative reinforcement strengthens the association between unpleasant emotional arousal and DSH, making DSH an automatic escape response (Chapman et al., 2006). Nixon, Cloutier and Aggarwal (2002) researched the addictive properties of DSH and reported a greater number of addictive features in the group of self-harmers who reported greater severity and frequency of DSH. However, their study was of a cross sectional nature which prevents clarity on the evolution of severe DSH.

[See extended paper: 4.2 Entitlement and Enmeshment]

Particularly strong relationships were demonstrated between DSH frequency and EMS's Defectiveness/Shame (explaining 39% of the variance), Emotional Deprivation (35%), Vulnerability to Harm (32%), Social Isolation/Alienation (31%), Mistrust/Abuse (28%), Abandonment/Instability (28%), and Dependence/Incompetence (27%) (percentages represent shared not unique variance). These findings suggest a lack of specificity of EMS's with regard to DSH within this sample. Only one other study was identified to have explored the relationship between DSH and EMS's (Castille et al., 2007), they reported only Social Isolation/Alienation to be associated with DSH frequency, however, their sample was both clinical and non-clinical ranging from 15 to 35 years of age. The differences between studies and the broad range of EMS's endorsed in the present study, could suggest that EMS's are less well defined and more fluid during adolescence (Beckley & Stopa, unpublished), as they are still in the process of elaboration (Muris, 2006). However, according to Schema theory the range of EMS's found in relation to DSH, in the present study, should also be expected in adult samples. This due to DSH being a coping strategy, which would have multiple functions dependent on the schema activation (i.e. to access care in relation to emotional deprivation, for punishment in terms of defectiveness/shame and to impact upon another person in relation to abandonment/instability).

With regard to the second aim of the present study, the results demonstrated that there is a relationship between greater intensity of EMS's and psychopathology in adolescents. However, this relationship was not significant when the YSQ-S total score was used, which could suggest that the YSQ-S total has little predictive ability of overall psychological distress in adolescents, or the general levels of distress were not particularly high. When the 15 EMS's were taken individually, relationships were found between psychopathology and all EMS's. Of particular note were the EMS's Vulnerability to Harm and Defectiveness/Shame which both accounted for approximately 53% of the variance. The prominence of these two EMS's in the present study is indicative of findings emerging from the literature in general. A number of studies have highlighted one or both of these EMS's as having an association with psychopathology (e.g. Rijkeboer & de Boo, 2010; Shah & Waller, 2000; Turner et al., 2005).

Research into EMS's and psychopathology in adolescents have found that the Defectiveness/Shame EMS is commonly endorsed in relation to depression in adolescents (Van Vlieberghe et al. 2010) and adults (Waller, Shah, Ohanian & Elliot, 2001). The underlying assumptions of the Defectiveness/Shame EMS is that one is defective, bad, inferior and invalid in important respects i.e. unlovable. This is consistent with Beck's content-specificity hypothesis, which suggests that psychological states and disorders should be differentiated by the content of their cognitive associates (Beck, 1976; Beck & Emery, 1985; Beck, Rush, Shaw, & Emery, 1979). Comparable to the Defectiveness/Shame EMS, the proposed cognitive themes in depression are assumed to be about negative self-evaluation, loss and deprivation (Clark, Beck, & Alford, 1999). Similarly, the Vulnerability to Harm EMS, which is with regard to catastrophe striking (physical, mental or natural) is commonly endorsed in relation to anxiety (Van Vlierberghe et al., 2010; Welburn et al., 2002). This mirrors Beck's cognitive themes of anxiety, being about physical or psychological threat (Beck et al., 1985). It is therefore possible that these two EMS's primarily tap into anxiety and depression, which have been found to predominate in adolescents who DSH (Bjärehed & Lundh, 2008; Ross & Heath, 2002, 2003). Interestingly,

Vulnerability to Harm was not significantly endorsed in adult self-harmers (Castille et al, 2007), which could lead to queries around EMS's and the role of developmental and social stages in adolescents (i.e. anxiety around separation, living at home with parents), and calls into question how the concept of a particular schema is interpreted based on developmental circumstance.

Anecdotally, adolescence is widely accepted as a difficult developmental period, however, even though "storm and stress" (Hall, 1904) is more likely to occur during adolescence than pre-adolescence or adulthood, it is not a certainty. Sun (2001) reported a correlation between increased family disruptions and problems during adolescence. From this one might conclude that the individuals who are experiencing a disruptive family environment and thus a troubled adolescence, are the individuals for whom EMS's are developing and becoming reinforced. Potentially the interaction between problematic parenting and difficulties with adolescence may result in an increase of interactions which develop and reinforce certain EMS's during this time. However, as the adolescent transitions into adulthood and further cognitive and environmental changes occur, certain EMS's may be reinforced less and become activated less. Yet, the use of DSH (e.g.) as a coping strategy for the EMS's remains and is used in response to EMS's that are activated in accordance with the current environment (i.e. living independently).

[See extended paper: 4.3 EMS's and Child Development]

The final aim was to explore whether EMS's could statistically predict DSH once gender and psychopathology were controlled for. Four EMS's reached significance: Emotional Deprivation, Vulnerability to Harm, Subjugation and Self-Sacrifice, all accounting for a unique proportion of the variance in DSH behaviour. These findings can be understood in the context of Schema theory, although with the caveat that this sample are likely to be living in their familial environment. These EMS's may represent particular facets of their current

situation as opposed to “childhood experiences” in the past tense as explained by Young et al. (2003). Therefore, within this context, a person with the EMS Emotional Deprivation would not have the expectation that their need for emotional support will be met by others, as they will potentially be experiencing deprivation in nurturance (absence of warmth, attention, affection) and/or empathy (absence of understanding, sharing, self-disclosure) and/or protection (absence of strength, guidance, direction). This EMS appears to have close theoretical ties with Attachment theory in the development of DSH. The emotionally deprived situation described by Young et al. (2003) partners the environment which Bowlby (1969) described as integral in the development a child’s understanding of their own and others emotions, and the ability to regulate their emotions, a key function in DSH (Klonsky, 2007). Following from this, a child currently living within this environment, where they do not perceive their safety to be assured from threat within or outside the home, logically leads to the presence of the EMS Vulnerability to Harm, and further provides a strong emotion (anxiety) that has the potential to go unregulated. In support of this, Lumley and Harkness (2007) found that Vulnerability to Harm mediated the relationship of childhood physical abuse and emotional maltreatment to anxious symptomatology.

The final two EMS’s considered predictive of DSH in the present study are Subjugation and Self-Sacrifice. Both of these EMS’s are typically based on conditional acceptance, meaning the child would need to suppress important aspects of themselves, including anger, in order to gain attention, approval and love. Individuals with these EMS’s, particularly Subjugation, would probably experience a build-up of anger, manifested in maladaptive symptoms (Young et al., 2003), including passive-aggression, temper outbursts and DSH.

The findings of the present study, via interpretation of the presenting EMS’s, have found that the repression and expression of anger is integral in the underlying mechanisms of DSH. In support of this Laye-Gindhu and Schonert-

Reichl (2005) reported significantly greater levels of maladjustment in anger control problems and the ability to tolerate anger discomfort in a sample of adolescent self-harmers. They additionally reported that the adolescents who DSH may manifest increased levels of hostility and anger, both intra and inter personally (Guertin et al., 2001; Ross and Heath, 2003). More recently, significant associations have been found between DSH and externalising behaviours in both clinical and non-clinical samples (Bjärehed & Lundh, 2008; Brunner et al., 2007; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). Sourander, Aromaa, Pihlakoski, Haavisto, Rautava, Helenius, and Sillanpää (2006) found parental reports of externalising behaviours amongst community adolescents were predictive of DSH three years later.

During adolescence, the role of anger in externalising and internalising disorders has been found to be significant. The present study lends particular support to the findings that the inhibition of anger (Zeman, Shipman, & Suveg, 2002), as represented by the Subjugation and Self-Sacrifice EMS's, is a significant predictor of DSH.

[See extended paper: 4.4 EMS's and Anger]

The present study has highlighted some strengths and weaknesses of using Schema theory in exploring DSH in adolescents. A potential weakness being that Schema theory does not address the impact of adolescence on the development and reinforcement of EMS's. The present study found a broad range of EMS's to be associated with both DSH and general psychopathology, which could be indicative of this weakness. This potential instability of EMS's in adolescence could mean that any specificity of EMS's to certain psychopathology found in the literature, is in part due to the overlap with Beck's theory of content-specific cognitions, not because EMS's are specific to certain psychopathology during adolescence. This will restrict the use of adolescent EMS's in predicting adult psychopathology. The present study additionally

highlighted similarities between Attachment theory and Schema theory when exploring the EMS's in individuals still living within the environment where the EMS's are theorised to develop thus opening the question of what Schema theory adds over and above Bowlby's model. In conclusion, it seems that Schema theory has the potential to provide an initial profile of a self-harmer, as found in the present study, adding a more detailed description, which could be used intergratively with Attachment theory in the identification, assessment, formulation and treatment of a self-harmer.

The present study also highlighted a number of additional clinical implications. Firstly, in raising awareness that DSH is a behaviour which adolescents commonly adopt. It can be co-morbid with a wide variety of psychopathology and negative beliefs regarding the self and others, however, assumptions should not be made regarding its association with chronic distress. The four EMS's: Emotional Deprivation, Vulnerability to Harm, Subjugation and Self-Sacrifice were found to be predictive of DSH behaviours, potentially providing a profile of an adolescent self-harmer to be conceptualised and potential risk factors to be hypothesised, over and above clinical presentation. This EMS profile could be useful in informing the assessment, formulation and intervention of a self-harmer/suspected self-harmer in this client group. The predictive quality of these four EMS's highlights the need for these beliefs to be addressed as part of an intervention, for which Schema therapy provides an outline of how each should be therapeutically addressed.

[See extended paper: 4.5 Further Clinical Implications]

There are a number of limitations to the present study. First, the self-selecting nature of this sample means the participants may not be truly representative of adolescents in the general community. Potentially this means that the results of this study can only be generalised to adolescents who are already self-harming. Secondly, only self-report measures could be used with this methodology,

conclusions may have been stronger with the adoption of a methodology which could have included multiple informants. Further, self-report measures can lead to bias in the data due to over or under reporting. This is particularly pertinent with regard to the YSQ-S, as the premise of EMS's is that they are activated by certain events, therefore it is unlikely that all, if any, of a person's EMS's would have been activated whilst they decided to complete the YSQ-S under these circumstance. Finally, because this study used a cross-sectional design and correlational data, it is impossible to determine the direction and precise nature of the relationship between EMS and DSH. In particular, it remains unclear if the EMS's preceded (and predicted) DSH, or are a consequence of DSH.

[See extended paper: 4.6 Further Limitations]

The present study highlights a number of areas for future research. As previously mentioned, the use of correlations prevents any firm conclusions regarding causation being drawn. Future work could explore the causative nature of the relationships between DSH and EMS's with the use of a longitudinal design. A prospective study could measure EMS's at time one and EMS and DSH at time two, monitoring transition and stressful events. Additionally, a study such as this could contribute to the knowledge on the mechanism through which specific diatheses interact with specific early life events in the development of specific EMS's.

[See extended paper: 4.7 Future Research; 4.8 Critical Reflections]

Conflict of Interest

The authors report no conflict of interest.

References

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.

Beck, A. T., & Emery, G. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.

Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.

Beckley, K. & Stopa, L. Schemas in Adolescents and their relationship to psychopathology, University of Southampton.

Bjarehed, J., & Lundh, L. (2008). Deliberate Self-Harm in 14-Year-Old Adolescents: How Frequent Is It, and How Is It Associated with Psychopathology, Relationship Variables, and Styles of Emotional Regulation? *Cognitive Behaviour Therapy*, 37(1), 26–37

Bowlby, J. (1969). *Attachment and Loss, Volume 1. Attachment*. New York: Basic Books.

Briere, J., & Gil, E. (1998). Self-mutilation in Clinical and General Population Samples: Prevalence, Correlates, and Functions. *American Journal of Orthopsychiatry*, 68, 609–620

British Psychological Society (2007). *Report of the Working Party on Conducting Research on the Internet: Guidelines for ethical practice in psychological research online*, Leicester: British Psychological Society.

Brunner, R., Parzer, P., Haffner, J., Steen, R., Roos, J., Klett, M., & Resch, F. (2007). Prevalence and Psychological Correlates of Occasional and Repetitive Deliberate Self-Harm in Adolescents. *Archives of Paediatrics & Adolescent Medicine*, 161(7), 641-649

Castille, K., Prout, M., Marczyk, G., Shmidheiser, M., Yoder, S., Howlett, B. (2007). The Early Maladaptive Schemas of Self-Mutilators: Implications for Therapy. *Journal of Cognitive Psychotherapy*, 21(1), 58-71.

Cerutti, R., Manca, M., Presaghi, F., & Gratz, K. L. (2011). Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents. *Journal of Adolescence*, 34, 337–347

- Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy*, 44, 371–394
- Claes, L., & Vandereycken, W. (2007). Self-injurious behavior: differential diagnosis and functional differentiation. *Comprehensive Psychiatry*, 48, 137– 144
- Clark, D. A., Beck, A. T., & Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. New York: John Wiley & Sons.
- Cleaver, K. (2007). Adolescent nursing: Characteristics and Trends of Self-Harming Behaviour in Young People. *British Journal of Nursing*, 16(3), 148–152.
- Cukor, D. (2004). The relation between parenting patterns, childhood events, and cognitive schema. *Dissertation Abstracts International: Section B: Science and Engineering*, 65, 432.
- Darche, M. A. (1990). Psychological factors differentiating self-mutilating and non-self-mutilating adolescent inpatient females. *The Psychiatric Hospital*, 21, 31–35.

- De Leo, D., & Heller, T. S. (2004). Who are the kids who self-harm? An Australian self-report school survey. *Medical Journal of Australia*, 181, 140–141.
- Derogatis, L. R. (1993). *Brief Symptom Inventory: Administration, Scoring and Procedures Manual*. Baltimore: Clinical Psychometrics Research.
- Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: an introductory report. *Psychological Medicine*, 13, 595-605
- Dwivedi, K. N., & Harper, P. (Eds) (2004). *Promoting the Emotional Well-Being of Children and Adolescents and Preventing Their Mental Ill Health: A Handbook*. London: Jessica Kingsley Publishers Ltd
- Favazza, A. R. (1998). The coming of age of self-mutilation. *Journal of Nervous Mental Disorders*, 186: 259–268.
- Favazza, A. R., & Conterio, K. (1989). Female habitual self-mutilation. *Acta Psychiatrica Scandinavica*, 79, 283–289.
- Faye, P. (1995). Addictive characteristics of the behavior of self-mutilation. *Journal of Psychosocial Nursing in Mental Health Services*, 33, 36–39

- Field, A. (2006). *Discovering Statistics Using SPSS (Introducing Statistical Methods series)* Sage: London
- Fliege, H., Lee, J., Grimm, A., & Klapp, B. F. (2009). Risk factors and correlates of deliberate self-harm behavior: A systematic review. *Journal of Psychosomatic Research*, 66, 477–493
- Gratz, K. L. (2001). Measurement of deliberate self-harm: Preliminary data on the Deliberate Self-Harm Inventory. *Journal of Psychopathology and Behavioral Assessment*, 23, 253–263
- Gratz, K. L., Conrad, S. D., & Roemer, L. (2002). Risk Factors for Deliberate Self-Harm Among College Students. *American Journal of Orthopsychiatry*, 72(1), 128–140
- Gratz, K. L., & Gunderson, J. G (2006). Preliminary Data on an Acceptance-Based Emotion Regulation Group Intervention for Deliberate Self-Harm Among Women With Borderline Personality Disorder. *Behavior Therapy*, 37, 25–35
- Green, H., McGinnity, A., Meltzer, H., Ford, T., & Goodman, R. (2005) *Mental Health of Children and young People in Great Britain 2004*. London: ONS.
- Guertin, T., Lloyd-Richardson, E., Spirito, A., Donaldson, D., & Boergers, J., (2001). Self-Mutilative Behavior in Adolescents Who Attempt Suicide by

Overdose. *Journal of American Academic Child and Adolescent Psychiatry*, 40(9), 1062-1069

Hawton, K., Arensman, E., Townsend, E., Bremner, S., Feldman, E., Goldney, R., Gunnell, D., Hazell, P., van Heeringen, K., House, A., Owens, D., Sakinofsky, I., & Träskman-Bendz, L. (1998). Deliberate self-harm: Systematic review of efficacy of psychosocial and pharmacological treatments in preventing repetition. *British Medical Journal*, 317, 441–447.

Hawton, K., Fagg, J., Simkin, S., Bale, E. & Bond, A. (1997). Trends in deliberate self-harm in Oxford, 1985-1995. *British Journal of Psychiatry*, 171, 556-560.

Hawton, K., Rodham, K., & Evans, E. (2003). *Youth and self-harm: perspectives. A report*. University of Oxford. Centre for Suicide Research, Samaritans.

Hawton, K., Rodham, K., & Evans, E. (2006). *By their Own Young Hand, Deliberate Self-Harm and Suicidal Ideas in Adolescents*. London: Jessica Kingsley Publishers.

Hawton, K., Rodham, K., Evans, E., & Weatherall, R. (2002). Deliberate self-harm in adolescents: Self report survey in schools in England. *British Medical Journal*, 325, 1207-1211.

- Hawton, K., Saunders, K. E. A., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *Lancet*, 379, 2373–2382.
- Hilt, L. M., Cha, C. B., & Nolen–Hoeksema, S. (2008). Nonsuicidal Self-Injury in Young Adolescent Girls: Moderators of the Distress–Function Relationship. *Journal of Consulting and Clinical Psychology*, 76(1), 63–71
- IBM Corp. Released 2010. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp.
- Klonsky, E. D. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, 27, 226–239.
- Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate Self-Harm in a Nonclinical Population: Prevalence and Psychological Correlates. *American Journal of Psychiatry*, 160, 1501–1508
- Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal Self-Harm Among Community Adolescents: Understanding the “What’s” and “Whys” of Self-Harm. *Journal of Youth and Adolescence*, 34(5), 447–457
- Lee, C. W., Taylor, G., & Dunn, J. (1999). Factor Structure of the Schema Questionnaire in a Large Clinical Sample. *Cognitive Therapy and Research*, 23(4), 441–451

- Lloyd-Richardson, E., Perrine, N., Dierker, L., & Kelley, M., (2007). Characteristics and functions of non-suicidal self-injury in a community sample of adolescents. *Psychological Medicine*, 37(8), 1183–1192
- Lumley, M. N., & Harkness, K. L. (2007). Specificity in the Relations among Childhood Adversity, Early Maladaptive Schemas, and Symptom Profiles in Adolescent Depression. *Cognitive Therapy Research*, 31, 639–657
- Lundh, L., Karim, J., & Quilisch, E. (2007). Deliberate self-harm in 15-year-old adolescents: A pilot study with a modified version of the Deliberate Self-Harm Inventory. *Scandinavian Journal of Psychology*, 48, 33–41
- Mangnall, J., & Yurkovich, E. (2008). A Literature Review of Deliberate Self-Harm. *Perspectives in Psychiatric Care*, 44(3), 175-184
- Muris, P. (2006). Maladaptive Schemas in Non-Clinical Adolescents: Relations to Perceived Parental Rearing Behaviours, Big Five Personality Factors and psychopathological Symptoms, *Clinical Psychology and Psychotherapy*, 13, 405–413
- Myers, R.H. (1990). *Classical and Modern Regression with Applications*, 2nd edition. PWS Kent, Boston, MA.
- Nixon, M. K., Cloutier, P. F., & Aggarwal. S., (2002). Affect Regulation and Addictive Aspects of Repetitive Self-Injury in Hospitalized Adolescents.

Journal of the American Academy of Child and Adolescent Psychiatry,
41(11), 1333-1341

Nock, M. K., Joiner Jr., T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, 144, 65–72

Nock, M. K, & Prinstein, M. J. (2004). A Functional Approach to the Assessment of Self-Mutilative Behavior. *Journal of Consulting and Clinical Psychology*, 72(5), 885–890

O'Connor, R., Rasmussen, S., & Hawton, K. (2009). Predicting Deliberate Self-harm in Adolescents: A Six Month Prospective Study. *Suicide and Life Threatening Behaviour*, 34(4), 364-375

Resch, F., Parzer, P., & Brunner, R. (2008). Self-mutilation and suicidal behaviour in children and adolescents: Prevalence and psychosocial correlates: Results of the BELLA study. *European Child and Adolescent Psychiatry*, 17, 92–98.

Rijkeboer, M. M., & de Boo, G. M. (2010). Early maladaptive schemas in children: Development and validation of the schema inventory for children. *Journal of Behaviour Therapy and Experimental Psychiatry*, 41, 102–109

- Ross, S., & Heath, N. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence*, 31(19), 67–77.
- Ross, S., & Heath, N. (2003). Two models of adolescent self-mutilation. *Suicide and Life-Threatening Behavior*, 33, 277–287.
- Schmidt, N. B., Joiner Jr., T. E., Young, J. E., & Telch, M. J. (1995). The schema questionnaire: Investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. *Cognitive Therapy and Research*, 19(3), 295-321
- Shah, R. & Waller, G. D. (2000). Parental Style and Vulnerability to Depression: The Role of Core Beliefs. *The Journal of Nervous & Mental Disease*, 188(1), 19-25
- Sourander, A., Aromaa, M., Pihlakoski, L., Haavisto, A., Rautava, P., Helenius, H., & Sillanpää, M. (2006). Early predictors of deliberate self-harm among adolescents. A prospective follow-up study from age 3 to age 15. *Journal of Affective Disorders*, 93, 87–96
- Stopa, L., Thorne, P., Waters, A., & Preston, J. (2001). Are the short and long forms of the Young Schema Questionnaire comparable and how well does each version predict psychopathology scores? *Journal of Cognitive Psychotherapy: An International Quarterly*, 15 (3), 253-272.

- Sun, Y. (2001). Family environment and adolescents' well-being before and after parents' marital disruption: A longitudinal analysis. *Journal of Marriage and Family*, 63, 697–713
- Suyemoto, K. L. (1998). The Functions of Self-Mutilation. *Clinical Psychology Review*, 18(5), 531–554.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Pearson
- Turner, H. M., Rose, K. S., & Cooper, M. J. (2005). Parental bonding and eating disorder symptoms in adolescents: The mediating role of core beliefs. *Eating Behaviors*, 6, 113-118.
- Underdown, A. (2009, March). *Young people who self-harm: Implications for public health practitioners*. Retrieved June 27, 2013, <https://www.nspcc.org.uk>.
- Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y., & Bogels, S. (2010). Maladaptive Schemas and Psychopathology in Adolescence: On the Utility of Young's Schema Theory in Youth. *Cognitive, Therapy and Research*, 34, 316–332
- Waller, G., Shah, R., Ohanian, V., & Elliott, P. (2001). Core beliefs in bulimia nervosa and depression: The discriminant validity of Young's Schema Questionnaire. *Behaviour Therapy*, 32, 139-153.

Welburn, K., Coristine, M., Dagg, P., Pontefract, A., & Jordan, S. (2002). The Schema Questionnaire—Short Form: Factor Analysis and Relationship between Schemas and Symptoms. *Cognitive Therapy and Research*, 26(4), 519-530

Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious Behaviors in a College Population. *Paediatrics*, 117, 1939-1948.

Yates, T. M. (2004). The developmental psychopathology of self-injurious behavior: Compensatory regulation in posttraumatic adaptation. *Clinical Psychology Review*, 24, 35–74

Young, J. E. (1990). *Cognitive Therapy for Personality Disorders: A Schema-Focused Approach*. Professional Resource Exchange.

Young, J. E. (1998). *The Young Schema Questionnaire - Shortened Inventory*. <http://www.schematherapy.com>. Copyright Jeffrey Young and Gary Brown.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema Therapy: A Practitioner's Guide*. New York: The Guilford Press.

Young, R., Van Beinum, M., Sweeting, H., & West, P. (2007). Young people who self-harm. *British Journal of Psychiatry*, 191, 44-49

Zeman, J., Shipman, K., & Suveg, C. (2002). Anger and Sadness Regulation: Predictions to Internalizing and Externalizing Symptoms in Children. *Journal of Clinical Child & Adolescent Psychology*, 31(3), 393-398

Zlotnick, C., Mattia, J. I., & Zimmerman, M. (1999). Clinical correlates of self-mutilation in a sample of general psychiatric patients. *Journal Nervous Mental Disorders*, 187, 296–301

Zlotnick, C., Shea, T., Pearlstein, T., Simpson, E., Costello, E., & Begin, A. (1996). The relationship between dissociative symptoms, alexithymia, impulsivity, sexual abuse, and self-mutilation. *Comprehensive psychiatry*, 37(1), 12-16

1. Extended Introduction

1.1 DSH Definition and Terminology

Within the literature a wide variety of definitions and terminology are used to describe the same DSH behaviours and variations in the behaviour. These differences make the synthesis of research problematic, presented here are details of the definition and terminology used within this study.

1.1.1 Deliberate Self-Harm Definition

The correct term to use when describing DSH is problematic with the confusion around which term means what. Different terms are used in different areas of health care provision and some terms are more acceptable to some service users than others (CG16, 2004, National Institute for Health and Care Excellence, NICE). The NICE guidelines state that to use the words “deliberate” or “intentional” to prefix self-harm is unacceptable due to those who self-harm during a dissociative state. It additionally infers that there could be non-intentional or accidental self-harm, which is considered misleading.

The word deliberate is considered to be making reference to the directness of the self-harm. Acts such as self-starvation, alcohol or drug abuse or engaging in psychologically damaging relationships are considered indirect and take a temporal element, which excludes them from the term DSH. There still remains debate within the literature as to whether self-poisoning or reckless behaviour should be included within the definition, some research includes these behaviours (e.g., De Leo & Heller, 2004; Patton, Harris, Carlin, Hibbert, Coffey, Schwartz, & Bowes, 1997), whilst others exclude them (e.g., Gratz, 2001).

Prominently, suicidal ideation is excluded from the term DSH (Favazza, 1998; Pattison & Kahan, 1983), whereas the term self-harm generally includes behaviours irrespective of suicidal intent, which can make comparison with alternative research difficult. Despite some co-morbidity between DSH with and without suicidal intent, research suggests that there are some important differences between them (Brown, Comtois, & Linehan, 2002).

The term DSH has also been preferred in the literature as it is considered to carry less negative connotation (Gratz, 2001) than terms such as self-mutilation. Alternative terms can evoke strong emotional reactions and increase the stigma attached to this behaviour. Further, terms such as mutilation suggests disfigurement, permanence and possibly a deep level of psychological disturbance, whereas despite DSH being a clinically relevant behaviour (Gratz, Latzman, Young, Heiden, Damon, Hight, & Tull, 2012) it is not a mental illness in itself, rather “other conditions or problems that may be a focus of clinical attention or that may otherwise affect the diagnosis, course, prognosis, or treatment of a patient’s mental disorder”.

Largely it is agreed that the term DSH includes the intentional harming of one’s body resulting in relevant tissue damage (Fliege, Lee, Grimm, & Klapp, 2009). It is mainly agreed upon to exclude 1) symptoms of or classificatory criteria of other disorders, i.e. eating disorders; 2) everyday habits i.e. lack of exercise; 3) psychological self-harm i.e. engaging in damaging relationships. The present study will use and be referring to the term “deliberate self-harm” in line with the literature, however, it may be abbreviated to self-harm when truncation is used to aid the reader. DSH will be used in this paper to mean a directive behaviour that causes minor to moderate physical injury, undertaken without conscious suicidal intent, that occurs in the absence of psychoses and/or organic intellectual impairment (Mangnall & Yurkovich, 2008).

1.1.2 Deliberate Self-Harm Terminology

Debate regarding the naming of this phenomena has been ongoing for over 70 years. Since it was first described by Karl Menninger as “wrist-cutting syndrome” in 1935, DSH has been described by a number of terms, such as deliberate self-harm (Morgan, 1979) self-mutilation (Nock & Prinstein, 2004), self-injurious behaviour (Taylor, Oliver, & Murphy, 2011), repeated self-harm (Crowe & Bunclark, 2000), self-wounding (Huband & Tantam, 2000) and para-suicide (Williams, 1997).

Historically, a variety of terms emerged in order to encapsulate and differentiate between self-harming behaviours, the group under review (e.g. the term self-injurious behaviour, in the UK, commonly refers to individuals with learning difficulties), or according to the extent to which suicidal intent is assumed (Madge, Hewitt, Hawton, de Wilde, Corcoran, Fekete, van Heeringen, De Leo, & Ystgaard, 2008). Additionally, a geographical divide is evident, with American studies favouring the term parasuicide, whilst the term deliberate self-harm is more prevalent in European studies. The growth of terminology has brought inconsistencies to the literature, as terms are used interchangeably for behaviours that are considered to differ structurally and functionally (see Baral, Kora, Yuksel, & Sezgin, 1998; Suyemoto, 1998; Winchel & Stanley, 1991). The lack of delineation of the variety of terms has impacted on the establishment of prevalence, explanation and management of DSH behaviours (Claes & Vanderereycken, 2007).

1.2 Prevalence

1.2.1 Prevalence in the Community

The statistics regarding the prevalence of adolescent DSH are unreliable (Mental Health Foundation, 2006). There are a number of issues surrounding DSH which makes prevalence extremely hard to estimate. Generally, DSH is a solitary and secretive act, for many, the results of which can be treated by the self-harmer or a family member and as such never reaching the attention of healthcare professionals and is therefore not counted. Not presenting at services could be due to a number of additional reasons, include the harm not being at a point of needing professional care, the act remains hidden from a caregiver who could facilitate seeking help, or to avoid the consequence of presenting at services (i.e. stigma, involvement of services). Further, there are issues with how DSH is defined, measured and reported in the literature, the wide variety of definitions, measures and reporting methods means collating data can be highly problematic. However, despite the surrounding issues, a number of studies have attempted to gain an idea of the prevalence of DSH in

the community, both in the UK and abroad, findings suggest it is a problem worldwide.

Prevalence rates across the world vary, a number of studies have reported that adolescents who had self-harmed in the last 12-month to be; 7.3% in the USA (Taliaferro, Muehlenkamp, Borowsky, McMorris, & Kugler, 2012), 8.4% in Australia, 6.9% in the UK (Hawton et al., 2002) and 11.5% in a study of seven European countries (Madge et al. 2008). Alternatively, other studies have reported the lifetime prevalence of adolescent DSH; in an Italian sample 42% (n=234) of adolescents reported having self-harmed (Cerutti, Manca, Presaghi, & Gratz, 2011), 56% (n=94) in a US sample (Hilt et al., 2008), 65.9% (n=123) in a Swedish sample and 68% (n=131) in a UK sample (Sim, Adrian, Zeman, Cassano, & Friedrich, 2009). Interestingly, in a study of adolescents in Europe and Australia, Madge et al. (2008) found the UK to have the highest comparable rate of DSH. They found 16.7% of females and 4.8% of males (n=5987) had reported one or more episode of DSH. Despite many of these studies adopting strong survey methodology, each finds a different prevalence estimate. This, as mentioned, could be due to variations in the sample (i.e. schools, hospitals, all girls), measures, analyses, etc.

1.2.2 Prevalence by Gender

Within the adolescent DSH literature there is a clear gender difference. Most studies, both in the UK and abroad, report that DSH is more common in females than males, regardless of whether they are within a clinical or non-clinical sample, age ranging anywhere up to 18 years (Bjarehed & Lundh, 2008; De Leo & Heller, 2004; Hawton et al., 2002; Madge et al., 2008). These findings sit in contrast to the adult literature, where a less clear picture is presented via inconsistent results. Zlotnick, Mattia, and Zimmerman (1999) reported higher rates of DSH in women, whilst other studies have reported no gender difference in clinical (Briere & Gil, 1998; Stanley, Gameroff, Michalsen, & Mann, 2001) and non-clinical samples (Briere & Gil, 1998; Gratz, 2001).

1.2.3 Theories of female prevalence

DSH has been reported to be more prevalent in females than males. In light of this, the dearth of explanations for this phenomenon is surprising. One possible explanation has been posed by Hawton, Hall, Simkin, Bale, Bond, Codd, and Stewart (2003) who theorise that the vulnerabilities in this group could be due to earlier puberty in females, the tendency for girls to engage in relationships with older males leading to painful break-ups, and DSH being a more acceptable way for females to deal with problems, whilst boys have a tendency to deal with distress via more external means, like delinquent behaviour. The suggestions made by Hawton et al. (2003), leave a considerable amount open to interpretation, explicit links are not made, leaving the reader to make assumptions with regard to their meaning. Contrary to part of Hawton et al.'s (2003) speculations, some research has shown that boys are more likely to DSH as a result of a romantic break-up (Adler & Adler, 2007), whilst for girls it is more likely to be self-punishment.

An alternative theory has been put forward by Laye-Gindhu and Schonert-Reichl (2005) who regard the gender differences to be related to differential socialisation patterns. They hypothesised that girls are more likely to direct their feelings inwards, whilst boys turn their feelings outwards, a theory that has been supported in the literature (Crick & Zahn-Waxler, 2003). Alternatively, the differences in prevalence of DSH between males and females could be due to the way by which it is measured. Cheng, Mallenckrodt, Soet, and Sevig (2010), on developing a screening questionnaire, found that the best questions when screening for male DSH were very different to those of females. Within the literature, there does not appear to be a gender specific screening tool used, which, if this theory is correct, could go some way to explaining the gender difference.

1.3 DSH Behaviours

The classification and measurement (frequency and severity) of DSH continues to be problematic for researchers and healthcare providers. Favazza (1992) theorised that DSH falls into three categories. The first category is the most common types of DSH, known as 'superficial/moderate self-mutilation'. This type of DSH is the focus of this paper, and includes such acts as cutting, carving/scratching the skin, biting, burning, and piercing the skin and interference with wound healing. The second category is 'stereotypic self-mutilation', most commonly seen amongst those with learning disabilities or developmental disorders, it is characterised by distinctive habitual and repetitive behaviours, for example repetitive head banging. The third category is relatively rare, it is termed 'major self-mutilation' and includes such behaviours as self-enucleation, removal of body parts or auto-castration (Favazza, 1992). Further, he categorises DSH into *episodic*, *repetitive* and *compulsive* (cited in Strong, 2000, pp. 26–27). DSH may therefore be understood to vary significantly in terms not only of motive but also in the pattern and frequency of the behaviour and the scale of the injury (Best, 2009)

Debate in the literature as to whether body adaptations (piercings, tattoos, branding) are DSH is inconclusive. Some authors conceptualise body adaptations as simply fashion, whilst others assign deeper psychological meaning (Craik, 1994; Turner, 1999). Claes and Vandereycken (2007) made a distinction between behaviours which are self-care (body-care) and self-harm (body-harm), theorising that both can be normal and abnormal, with the caveat that care versus harm is subjective and dependant on the meaning or purpose of the act. Normal self-care consists of behaviours which are socially accepted and applied to attain or maintain a norm of health or physical attractiveness. This would suggest that "normal", being subjective, will have variants, and DSH thus can exist. Tattooing and body piercing may therefore be considered as an act of self-care.

1.3.1 Societal Factors – DSH and the Media

The high incidence of DSH has been associated with societal factors, including the media. Diekstra (1989) stated that the media may have played a role in making attitudes more lenient towards both DSH and suicide in many cultures. He further pointed out that it appears to be young people who are most affected by the media and related cultural influences. A number of high profile actors, singers and even British royalty have been open about their DSH, plus British dramas use DSH as story lines. Following an episode of *Casualty*, where a character self-harmed via the ingestion of paracetamol, presentation at A&E for the same increased by 17% the following week (Hawton, Simkin, Deeks, O'Connor, Keen, Altman, Philo, et al., 1999).

Hawton et al. (2012) have drawn attention to “new media”, including the internet social networking sites and chat rooms. A number of pro-DSH and suicide web pages exist where people can make suicide pacts or discuss ways to DSH, the potential impact on youth DSH is considerable (Collings, Fortune, Currey, Hawton, Wang, & Slim, 2011), and gives support to the theory of the contagion effect (Yates, Carlson, & Egeland, 2008).

Brunner et al. (2007) reported that more hours of media consumption (music, television, video games) was a significant psychosocial factor associated with DSH. However, these pass times could be a cause or effect of loneliness, which has also been found to be a significant factor associated with DSH (Guertin et al, 2001). This throws into question whether hours of media consumption is a result of the DSH, which has been found to be isolating, or the cause. Further, Eckersley (1993) highlighted how Western society has become one of mass-media culture which encourages social withdrawal, recklessness and abuse of our bodies, all of which may be adding to the increase of adolescent DSH.

1.4 Risk Factors of Deliberate Self-harm

DSH in adolescence has been conceptualised as a complex interplay between psychological, biological, psychiatric, genetic, cultural and social factors (Hawton et al., 2012). In a review of the literature, Hawton et al. (2012) categorised the risk factors into three overarching themes: 1) Individual negative life events and family adversity, 2) Sociodemographic and educational factors, and 3) Psychiatric and psychological factors. Presented here is an overview of the factors most highly associated with adolescent DSH in the literature.

1.4.1 Individual negative life events and family adversity

The role of childhood abuse in the development of DSH has been explored in a number of adult and adolescent studies. Yet the relationship between abuse and DSH in adolescence remains far from conclusive, particularly in community samples. A major problem continues to be the ability to collate information when a variety of differing terms are used to describe variations of abuse and DSH. Additionally, the majority of studies investigating the links between abuse and DSH are taken from clinical population including those who present at A&E. This has the potential for sample bias as the participants are self-selecting and also may be those that are particularly negatively affected by past experiences (Evans, Hawton & Rodham, 2005). Kann, Kinchen, Williams, Ross, Lowry, Grunbaum et al. (1999) theorised that there may be demographic and psychosocial differences between the self-harmers who do and do not seek medical attention. Additional issues occur due to the various forms of abuse (i.e. emotional, physical, sexual) clustering, making it difficult to isolate the crucial risk factor (Skegg, 2005). Despite the issues some community studies have attempted to explore the relationship between child maltreatment and DSH.

The connection between sexual abuse and DSH is elusive. Within the literature, including empirical research, meta-analyses and systematic reviews,

a mixed picture emerges. Some found no association between the two (Chitsabesan, Harrington, Harrington, & Tomenson, 2002; Klonsky & Moyer, 2008) whilst others found associations ranging from “a trend” (Brown, Houck, Grossman, Lescano, & Frenkel, 2008) to a “strong association” (Evans et al., 2004) in clinical and community samples (e.g. Cerutti et al., 2011; Hawton et al., 2002; Madge et al., 2008; O’Connor, Rasmussen, & Hawton, 2009). The role of sexual abuse in DSH has also been considered in relation to a number of other factors including gender, only an association between DSH and sexual abuse was found with females (e.g. Brown et al., 2008; Ystgaard, Reinholdt, Husby, & Mehlum, 2003), social deprivation, which was found to be a mediator (Ayton, Rasool, & Cottrell, 2003), and frequency (Yates et al., 2008). Yates et al. (2008), in a study of DSH frequency, found that sexual abuse was associated with repetitive DSH, whilst physical abuse was associated with intermittent DSH. Results must be interpreted with care as most studies used retrospective reports, unfortunately retrospection is prone to recall biases, leading to over and under reporting of events.

Due to the wide range of results, sexual abuse could be conceptualised as a proxy risk factor for DSH (see Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001). This would suggest that sexual abuse and DSH may correlate with the same psychological risk factors, as opposed to there being an aetiological or unique link between them (Klonsky & Moyer, 2008), so even though sexual abuse may be a factor for some it may not be for others.

Despite the many studies that have looked for links between child maltreatment and DSH, few have attempted to psychologically explain why individuals who have experienced abuse may choose to DSH as opposed to engage in other behaviours, which serve the same function i.e. drugs and alcohol. Glassman, Weierich, Hooley, Deliberto, and Nock (2007) have put forward one possible explanation, they postulated that individuals who DSH do so due to the self-injurious nature of the behaviour, which has been learnt through modelling of abusive experiencing in childhood. For these children their early years were characterised by excessive criticism, repeated insults, physical and/or emotional

abuse, teaching them to have a similar critical view of themselves. Over time the behaviour of the abuser is modelled by the child, possibly leading to a self-critical cognitive style, which manifests in the engagement of self-punishment, in the form of DSH, when they disapprove of their own behaviour.

In support of their theory, Glassman et al. (2007) found a particularly strong relationship between emotional abuse and DSH, and that self-criticism mediated the relation between emotional abuse during childhood and engagement in DSH during adolescence. A limitation of this proposed pathway into DSH, as explored in the literature, is that DSH has a number of functions that it can be serving simultaneously. In other words, DSH cannot be explained through a simplistic pathway such as this, i.e. suggesting that the function of DSH is self-punishment. Within the literature affect regulation alongside self-punishment is endorsed more commonly than other reasons (Brown et al., 2002; Shearer, 1994).

1.4.2 Familial Factors

Factors specific to the family environment have been studied with regard to the development of DSH. Commonly reported is the role of conflict within the family, whether it be inter-marital abuse (Dube, Anda, Felitti, Chapman, Williamson, & Giles, 2001) or child parent conflict (Guerreiro, Neves, Navarro, Mendes, Prioste, Ribeiro, Lila, et al., 2009), the family emotional climate is considered to be intrinsic in the development of DSH (Sim, Adrian, Zeman, Cassano, & Friedrich, 2009). The theorised importance of the negative emotional family climate could be considered to overlap the findings on abuse. As, for example, abuse towards the mother could serve as psychological abuse for the child, leading to issues around interpreting the data. This finding could lend support to the role of attachment theory (Bowlby, 1967) in the development of DSH. Sim et al. (2009) theorised that growing up in an emotionally invalidating environment would reduce a child's ability to identify or express their negative emotions and leave them less able to manage strong emotional experiences in adaptive ways. This theory sees considerable overlap with Attachment theory.

Specific relationships within the family have also been highlighted in the development of DSH, particularly the paternal relationship (Hilt, Nock, Lloyd-Richardson, Mitchell, & Prinstein, 2008). Studies have found that poor communication with fathers (not mothers) increased the risk of suicidal behaviours in intact families (Gould, Shaffer, Fisher, & Garfinkel, 1998). Father-adolescent conflict is especially predictive of poor psychological well-being (Shek, 1998). Of note is a limitation of Hilt et al.'s study, who used a single question to ascertain DSH, which not only misses considerable detail, but additionally can leave a great deal open to participant interpretation leading to over or under reporting.

An additional risk factor strongly associated with DSH is seeing other family member self-harm (De Leo & Heller, 2004; Hawton et al., 2002; O'Connor et al., 2009). The contagion effect of DSH has been documented as having a strong influence on DSH in inpatient settings, even on adolescents who have not previously self-harmed (Taiminen, Kallio-Soukainen, Nokso-Koivisto, Kaljonen, & Helenius, 1998), however, the family setting is not considered to engender such an effect (De Leo & Heller, 2004). This risk factor may be better explained by social learning theory (see Bandura, 1971). The role of Social learning theory in DSH is emerging in the literature, O'Connor et al. (2012) theorised that it bridges the gap between thought and behaviour. Via a qualitative methodology, they brought support for social learning theory's role in DSH and legitimisation of DSH explanations (i.e. an adolescent said "if it is okay for my mother to self-harm when she is under pressure, it is okay for me to do so as well"). Alternatively, Joiner (2003) proposed "assertive relating", which proposes that individuals with similar vulnerabilities and risk factors will cluster. These clusters (families) will experience the same stressors simultaneously, it is the shared stressor that is the link, not modelling. However, this fails to explain why some families may adopt DSH, whilst another family may use alcohol, for example (Grant, 1998).

Regardless of the specificity of an event, it appears to be the exposure to a negative life event(s) that is a key factor associated with DSH (Madge et al.,

2008). During adolescence the perception of experiencing negative events could be increased by, for example, the developmental stage and/or the exposure to a higher number of potential stressors i.e. confusion around sexuality, boyfriend/girlfriend problems, conflict with teachers and/or parents, exam stress, doing poorly at school, and conflict with classmates, all of which are associated with DSH (Brunner et al., 2007; De Leo & Heller, 2004; O'Connor et al., 2009). Particular attention has been drawn to the association between bullying and DSH (De Leo & Heller, 2004; Hawton et al., 2002; O'Connor et al., 2009), especially in light of the increasing ways in which it can take place (i.e. cyber-bullying, text messaging, face-to-face, anonymously). Hay and Meldrum (2010) found the relationship between bullying and DSH to be far from trivial, finding standardized coefficients ranging from .32 to .39. There is little research with regard to the mechanisms through which bullying and many of the other risk factors increase DSH.

1.4.3 Psychiatric and psychological factors

A number of previous studies have found correlations between DSH and a range of clinical constructs, including anxiety, depression, low self-esteem, loneliness, perfectionism, impulsivity, and conduct disorders (Boergers, Spirito, & Donaldson, 1998; Guertin et al., 2001; Hawton et al., 2002) to name but a few. However, the profile of a self-harmer remains inconclusive, with variations in findings between studies suggesting that self-harmers are diagnostically heterogeneous and a range of psychological disorders may be experienced (Klonsky et al., 2003; Nock et al., 2006). What appears to carry significant empirical weight is that negative affect, as found in numerous psychological disorders, plays a vital role in the act of DSH. In support, many studies have reported a significant difference between self-harmers and non-self-harmers, (i.e. Laye-Gindhu, & Schonert-Reichl, 2005; Guerreiro et al., 2009; Ross & Heath, 2002) on measures of psychopathology. These findings follow on from the frequently reported function of DSH, as found by Klonsky (2007), who in a review of the literature concluded that DSH is most commonly performed to cope with acute negative affect.

Gender differences have been highlighted in some studies, which have found females to more commonly present with internalising disorders (e.g. anxiety, depression), whilst males display externalising disorders (e.g. conduct disorder) (Laye-Gindhu, & Schonert-Reichl, 2005). Contrary to this Ross and Heath (2002) found that students who self-harmed did report greater levels of anxiety and depressive symptomatology, but gender differences were not observed. In support of Laye-Gindhu and Schonert-Reichl (2005), associations have been made between ADHD, conduct disorders, and DSH in males (James, Lai, & Dahl, 2004). ADHD is thought to increase the risk of DSH due to its effect on the severity of comorbid disorders e.g. conduct disorder and depression (James et al., 2004). A greater amount of both internalising problems and externalising problems have been found to be closely related to occasional and repetitive DSH (Brunner et al., 2007).

1.5 Functions of DSH

The functions of DSH have recently received additional attention in the clinical literature. A number of functions have been identified including emotional regulation, to release anger or tension, relieve unpleasant thoughts, to provide a sense of control or security, self-punishment, and/or to end dissociation (for a review see Gratz, 2003). It is of note that DSH is theorised to serve multiple functions simultaneously (Suyemoto, 1998). Community samples of adolescents remain under represented within the literature, however, similarities between clinical and non-clinical samples have been observed. It is beyond the scope of this paper to explore all the functions of DSH, further there is overlap between the functions and models of DSH. Therefore, presented here are the two most commonly reported functions of DSH, being emotional regulation and self-punishment (extensive reviews of the functions of DSH have been carried out, see Gratz, 2003; Klonsky, 2007)

1.5.1 Emotional Regulation

Within the adult DSH literature individuals who DSH report high levels of negative emotions prior to DSH and more generally (e.g., Michel, Valach, &

Waeber, 1994), including depressive affect (e.g., Haw, Hawton, Houston, & Townsend, 2001), anxiety (e.g. Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005) and depersonalization or emptiness (e.g., Simpson, 1975). With studies finding that 80–94% of individuals report an improvement in affect following DSH (Coid, 1993), in particular, relief from unbearable anxiety (e.g., Favazza & Conterio, 1989; Simpson, 1975; Wilkins & Coid, 1991). Consistent with these finding, the most commonly reported function of DSH is as a coping strategy, which helps the individual escape, manage, control or regulate overwhelming emotions (Chapman et al., 2006). In a review of the literature Klonsky (2007) found that emotional regulation was not only the most frequently studied function, but also that the findings were strongest for this function. In a synthesis of his findings, Klonsky concluded that: 1) individuals experience acute negative affect prior to DSH (e.g. anxiety, anger, loneliness, guilt, self-hatred), 2) most often the intention behind DSH is to reduce negative affect, 3) DSH provides temporary emotional relief from the negative affect, and 4) even proxy DSH behaviours (i.e. visualising cutting), under laboratory conditions, leads to a reduction in negative affect. However, Klonsky's review was based on clinical populations, which means the findings may not be generalisable to non-clinical group.

Research into the function of DSH for children and adolescents in the community is extremely lacking. One study has been identified that considered adolescents (Laye-Gindhu & Schonert-Reichl, 2005), however, most of the research has focused on undergraduate students (Klonsky, 2007, 2009; Gratz, 2003), who are considered to be young adults. Nonetheless, the findings of these studies appear consistent in finding the majority of participants in community samples use DSH to regulate emotions, with most, but not all, reporting an increase in positive affect following DSH (Klonsky, 2009).

According to Linehan (1993a), invalidating environments in childhood teach poor coping strategies for emotional distress. Children from these environments, and/or with biological dispositions for emotional instability, are less able to manage their emotions and become more prone to use DSH as a

maladaptive way to regulate affect. Consistent with this model, Gratz et al. (2002) found that insecure attachment and emotional neglect in relation to parents is a risk factor for DSH.

1.5.2 Self-punishment

After emotional regulation, self-punishment is the most prevalent reason for DSH (Briere & Gil, 1998; Brown et al., 2002; Klonsky, 2007). The self-punishment hypothesis suggests that DSH is an expression of anger or derogation towards oneself (Klonsky, 2007). In support of this studies have found self-harmers endorsing statements regarding the function of their DSH such as “a way of expressing anger towards myself” and “as a way to punish myself”. Further, this hypothesis is consistent with research that has found self-derogation and low self-esteem in self-harmers (Herpertz, Sass, & Favazza, 1997; Klonsky et al., 2003; Lundh et al., 2007).

Linehan (1993) hypothesised that DSH represents a form of self-directed abuse, which is a learned behaviour from a childhood characterised by criticism and maltreatment. The childhood environment has taught them that they should punish and invalidate themselves. In support of this a number of studies have found characteristics of self-harmers to be self-directed anger (Klonsky et al., 2003; Soloff, Lis, Kelly, Cornelius, & Ulrich, 1994). Additionally, Glassman et al. (2007) found that self-criticism mediated the relationship between childhood abuse and DSH. This would suggest that DSH would serve as a familiar experience that soothed the individual in the face of distress.

An alternative explanation for the link between DSH and self-punishment, has been put forward by Swann, Hixon, Stein-Seroussi, and Gilbert (1990), who hypothesised that the reduction in emotional arousal following DSH is due to a process termed self-verification. This theory works on the assumption that self-punishment encapsulates a range of behaviours including self-criticism, DSH, and self-deprivation, all of which are deserved following a perceived transgression. Self-verification theory hypothesises that people behave in ways that are congruent with their beliefs about themselves, if those beliefs are

disconfirmed people experience high states of emotional arousal i.e. tension/anxiety, and feel out of control. Similarly, cognitive dissonance theory states that high negative emotional arousal occurs when inconsistencies in cognitions occur (e.g., “I deserve to be punished” and “I have not been punished”) (Festinger, 1978). This can lead to people engaging in a DSH behaviour which restores a sense of control, makes the world predictable and confirms their beliefs about themselves i.e. I deserve to be punished and I have been punished.

What becomes apparent when considering the functions of DSH and suggested models, is the vital role of childhood, the core beliefs/ schemas which are developed at this time and their role in the hypothesised DSH trajectory. In light of this, the deficit in research on DSH and schemas is surprising.

1.5.3 DSH and Suicide

Often DSH and attempted suicide are used interchangeably in the literature (Shaw, 2002), however, some research suggests that DSH with and without suicidal intent, are structurally and functionally different (Claes & Vanderereycken, 2007, Klonsky, 2007). Other researchers have suggested they share some psychological risk factors (Muehlenkamp, 2005) and are thought to be indirectly related. Brunner et al. (2007) reported that adolescents who had suicidal thoughts demonstrated a 3-fold higher risk of occasional DSH, whilst the risk of repeated DSH increased 7-fold. Adolescents who report frequent suicidal thoughts demonstrated an 18-fold risk of repetitive DSH, in contrast to a 2-fold greater risk of engaging in occasional DSH. However, this research utilised a cross-sectional methodology, making the interpretation of the results limited, as it is difficult to ascertain if DSH was the cause or effect of suicidal ideation.

This is not to say that all adolescents who DSH have suicidal thoughts (Klonsky, 2007), or in fact visa verse (Hawton et al., 2002). Research suggests that suicidal ideation is extremely prevalent amongst self-harmers, Laye-Gindhu and Schonert-Reichl (2005), found that 83% of self-harmers, compared to 29% of

non-self-harmers report suicidal ideation ($\chi^2 (1, N=424) = 66.89, p < .001$). They also reported that 40% vs. 3% ($\chi^2 (1, N = 423) = 96.22, p < .001$) had made a suicide plan and 26% vs. 6%, ($\chi^2 (1, N = 422) = 82.59, p < .001$) reported ever attempting suicide (repeatedly), no gender difference was found.

Laye-Gindhu and Schonert-Reichl (2005) research supports the work of Hawton et al., (2003), who also found high rates of suicidal ideation amongst adolescents, however, they conceptualised suicidal intent to be on a spectrum. In a 10 year study of 1583 adolescents who self-harmed, they measured suicidal intent using the Beck Suicidal Intent Scale (Beck, Schuyler, & Herman, 1974). Findings showed that 42.7% scored within the low intent range, 36.9% in the moderate intent range, 17.5% in the high intent range and 2.9% in the extremely high intent range. They further found that males reported higher levels of intent than females ($\chi^2 = 13.04, p < .001$). These results must be viewed with caution as this study was conducted with individuals who presented at A&E, which suggests DSH of greater severity. DSH is considered to exist on a spectrum (i.e. delicate cutting vs. auto-mutilation), with the most serious forms relating closely to suicide, whilst behaviours at the other end of the spectrum are thought to merge with alternative reactions to emotional pain (Skegg, 2005). Therefore, Hawton et al. (2003) study, may not be representative of the greater proportion of self-harmers in the community who do not present at A&E.

This poses the question of where the line is drawn between DSH with and without any intent to kill, and if it is possible to distinguish between DSH and suicidal behaviour. Favazza (1998) considered DSH with intent to die comes from different antecedents and outcome expectations, and further is a morbid form of self-help. This theory relates with that of the psychodynamic perspective, which theorised that DSH is anti-suicide, a coping strategy which enables the individual to act on the death impulse whilst preserving life (Firestone & Seiden, 1990). The relationship between DSH and suicide is complex and without definitive explanation, the research suggests that DSH can exist without suicidal intent, however, DSH, particular repetitive DSH, is a

significant risk factor in completed suicide (Hawton, Fagg, Simkin, Bale, & Bond, 1998).

1.6 Theories and models of deliberate Self-Harm

Presented here is a brief overview of a number of theories and models' contribution to the understanding of DSH, plus a short critique of each. It is not the focus of this paper to explore all the facets or empirical evidence pertaining to each model.

1.6.1 Psychodynamic Theories

Psychodynamic Theory is not a unified approach, on the contrary it is made up of an array of theoretical ideas and technical applications (Levy, Yeomans, & Diamond, 2007). Presented here is an outline of the general premise of psychodynamic theory and some of the most influential theories, known as the Drive models. These models will be critiqued together following the description.

In brief, Psychoanalysis is the psychology of the conflicting forces inherent in the dualistic nature of man. Within the mind the conflicting dualism might be dichotomised into conscious and unconscious, within society into biological animal and social being (Arlow, 1979). Psychoanalysis theorises that the personality is developed through conflicts between the conscious and unconscious and between the biological motivating forces (sex and aggression) and societal constraints. According to Freud, this human motivation is governed by a need to seek pleasure and avoid pain (Arlow, 1979; Freud, 1958).

1.6.1.1 The Drive Models

1.6.1.1.1 The Affect Regulation Models

Many authors have studied and discussed the role of affect regulation in DSH, a great number finding it to be the primary function. Within the psychodynamic

approach, the affect regulation models are primarily embedded in ego psychology, as they are with regard to containing and expressing need and affect.

Anna Freud's (1958) affect regulation model is thought to contribute to the understanding of why DSH is prevalent in adolescence, stating that one of the tasks in adolescence is to draw a distinction between the self and the mother. This task, in part, is characterised by the need to disconnect ties with infantile love objects (mother), causing anxieties and pathologies. Struggles to break these ties may result in the initiation of defensive manoeuvres against the ties which connect them to the love object, for example reversal of affect, love is turned to hate and dependency to revolt. At the same time, there is internal hostility which is working to defend the need for the love object, a tension that soon becomes intolerable to the ego, which then must defend itself. These conflicts result in either outward projection (i.e. aggression), or inward projection, expression through DSH (Freud, 1958). This model sees anger being directed in on the self as opposed to being directed towards the abandoning object, it is not the object that is hated for leaving, it is the self for having the need and the anger (Suyemoto, 1998).

1.6.1.1.2 The Antisucide Model

The most influential contribution, of the time, to the psychoanalytic understanding of DSH is the work of Messinger (1935), who regarded DSH as a conflict between aggressive destructive impulses aided by the superego and a humans' will to live. He considered that DSH was local or partial-destruction used to satisfy irresistible urges of self-destruction. As such, Messinger made a distinction between DSH and suicide, he conceptualised DSH as a means of fending off suicide. Firestone and Seiden (1990) described DSH as "Micro-suicides", enabling the individual to embrace the urges of self-destruction and create an "illusion of master over death". Therefore the ant suicide model conceptualises DSH as a coping strategy used to avoid suicide, as opposed to an attempt to end one's life.

1.6.1.1.3 The Sexual Model

The Sexual Model proposes that DSH fulfils a number of functions including controlling sexuality and sexual maturation, provides sexual gratification, and tries to avoid / punishes sexual feelings or actions. The associations between DSH and sexuality (development of) has been affirmed by psychoanalytic authors based on a number of factors, including the absence of DSH prior to puberty (Daldin, 1988; Doctors, 1981), the high correlation between sexual abuse and DSH (Langbehn & Pfohl, 1993; Zlotnick et al., Begin, 1996), and the incidences of sexual-dysfunction in people who DSH (Dulit, Fyer, Leon, Brodsky, & Frances, 1994).

One of the earliest hypotheses came from Emerson (1914), who in a case study regarding a female self-cutter, argued that DSH is a result of guilt and repulsion of sexual feelings, an inwardly focused anger from interpersonal rejections. More recently DSH has been seen as having a dual purpose, firstly to provide sexual gratification, and secondly punishment for having the sexual drive, further expressing an unconscious desire to destroy the genitals which are the root of this drive (Daldin, 1988, Friedman, Glasser, Laufer, Laufer, & Whol, 1972).

Friedman et al. (1972) made a connection between the changes associated with puberty and a reawakening of Oedipal issues (Freud, 1958). They stated that in adolescence the increased levels of aggression, which accompany puberty, combined with an increase of sexual fantasies regarding the mother is overwhelming. The self-harmer feels “forced” by the body to have these fantasies and DSH is a way of purifying the body. The DSH is again seen as a displaced attack on the source of the urges, being the genitals, which as part of the body, is seen as being separate to the self. Friedman et al. (1972) further stated that the reported relief following an episode of DSH is due to the genitals remaining intact, despite the attack.

DSH has also been conceptualised as turning passive into active, taking control of sexual urges and penetration (Doctors, 1981). Doctors (1981), via clinical observation, noted that many of their clients had been subjected to sexual intercourse and/or rape early in life, DSH was a way of focusing sexual feeling and also relieving anxiety regarding those feelings whilst taking control of them. The idea of turning passive into active via DSH has additionally been associated with reactions to menarche and menstruation (Doctors, 1981; Simpson, 1975). Rosenthal, Rinzler, Wallsh, and Klausner, (1972), in a study of 42 young women who self-harmed, found connections between DSH and menstruation. Firstly that DSH had not occurred prior to menarche, secondly that 60% of DSH episodes occurred during menstruation, and thirdly that 65% of the women reported having a negative reaction to menarche. Rosenthal et al. (1972) concluded that DSH may be a way of dealing with genital trauma and conflict regarding menstruation. In this instance the conflict is displaced away from the genitals and the bleeding relocated, exposed and controlled, turning passive into active. This hypothesis gives some explanation as to why DSH is more commonly seen in females.

1.6.1.1.4 The Dissociation Model

The dissociation model is the only psychodynamic model that explicitly addresses the connection between DSH and dissociation (Suyemoto, 1998). Unlike many other psychodynamic models, this model focuses primarily on the self with regard to experiences and knowledge, without the relationship to others. In line with other models, this model sees DSH as a way to regulate affect, but it focuses on the dissociation as a defence mechanism and looks at how it interacts with DSH to regulate emotion. Most authors have conceptualised DSH as a means of ending dissociation (Miller & Bashkin, 1974; Pao, 1969; Simpson, 1975), all but Himber (1994) who theorised that it was a way to cause dissociation.

1.6.1.1.5 Critique

The psychoanalytic models are all open to the same broad conceptual and empirical criticisms. Empirically, psychodynamic theory has been criticised for being unscientific. Unconscious conflicts and Freud's tripartite theory of personality (Freud, 1905) are unmeasurable constructs, making them unfalsifiable. A psychological theory has two key components: (1) it must describe a behavior and (2) make predictions about future behaviours. Alternative models offer more substantial explanations which are subject to more systematic testing.

Conceptually, psychodynamic theories took a behaviour and inferred inner determinants from the behaviour they were meant to cause, thus providing a pseudo explanation (Bandura, 1971). For example theorists would observe a behaviour that sees a person damaging the body and infer a death impulse. Applying one theory to one behaviour left psychodynamic theory open to criticism with regard to disregarding the tremendous complexity of human responsiveness (Bandura, 1971). The model was thought to lack an account of the huge amount of variation in the incidences and strength of a behaviour in a variety of circumstances with different people at different times.

1.6.2 Attachment Theory

Attachment theory is considered to be a collection of theories, for the purpose of this report, a brief outline of some of the relevant aspects of attachment theory will be provided, full reviews are available (Cassidy & Shaver, 1999).

Bowlby described "attachment" as the emotional bonds that develop between a primary caregiver and infant. Central to this theory is the concept "secure base", which is originally provided by the primary caregiver, from which the child can explore the environment (Ainsworth, 1963, 1967; Schaffer & Emerson, 1964) and return to in times of distress (hunger, tiredness, pain, presence of a stranger) (Weiss, 1991). It is the relationship with the caregiver, and more

specifically their responses to the attachment behaviours (cooing smiling, clinging, crying, following), that is considered vital in a child's social, emotional and cognitive development. From birth the child has a repertoire of attachment behaviours to gain proximity to the caregiver, which develop with the child. In early life these attachment behaviours are not only thought to serve the function of ensuring survival, but also the beginning of learning emotional regulation. Stern (1985) investigated the caregivers non-verbal responses to a child's expressed emotion, known as "affect attunement". Mothers were asked not to attune with their infant when they expressed affect, leading to the infant showing distress and puzzlement. It was hypothesized that the infant's use of this affect dialogue is the start of the learning process of how to regulate emotion (Cassidy & Shaver, 1999).

As the infant develops, the need for physical proximity decreases due to their developing sense of safety, which is based on their knowledge that their caregiver is available and responsive when their needs are expressed (Kobak, 1999). For example, when the child explores their environment and senses danger or feels fear, attachment behaviours are triggered and the secure base is sought out to help manage emotions (i.e. anxiety) and retain a sense of *felt security* (Sroufe & Waters, 1977). If the caregiver is able to remain psychologically present when the child's emotions become dysregulated, the child is more likely to integrate their experiences into their narrative, making the attachment security of the parent central to the development of attachment security in the child (Hesse, 1999).

A child who grows up in an environment where the caregiver is unable to remain psychologically present or is frightening, may have failed to develop the ability to regulate their own emotions. Within this environment they may experience "fright without solution" (Main & Hesse, 1990), meaning they would have been left distressed, with emotions running at unmanageable levels of arousal when proximity is sought. The child would not have learnt how to self-

soothe, and therefore this extreme arousal may lead to dissociation to escape the psychological distress (Main & Hesse, 1990), and in the future a lack of knowledge of how to regulate emotion in a functional way i.e. leading to the use of DSH. Fonagy, Leigh, Steele, Kennedy, Mattoon, Target, and Gerber (1996) suggested that this type of relationship with a caregiver may also stunt the development of a child's ability to explore or understand their own emotions or those of the caregiver. It was hypothesised that this would mean the child would be unable to manage their own emotions leading to internalising (e.g. self-harm) and/or externalising (e.g. aggression and defiance) behaviours.

Attachment theory has been adapted and added to since Bowlby's original theory was published, resulting in a lack of a clearly defined model, and consequently difficulties with the synthesis of the research to create a coherent up-to-date theory (Bartholmew, Kwong, & Hart, 2001). The extent to which Attachment theory has been researched and developed could be considered an accolade to its contribution to the understanding within a number of fields i.e. child development, development of personality and pathology. With respect to DSH, Attachment theory is able to answer questions with regard to function e.g. "What is this behaviour for?" and evolution e.g. "How did it evolve?" (Tinbergen, 1963), but with the assumption the child has undergone a poor parenting experience. Many individuals who DSH report a positive family life and caregiver relationships (Adler & Adler, 2007), yet due to the problems with retrospective reports, these testimonies may not be reliable. Further Attachment theory focuses on the behaviour of the parents in being causal in the outcomes of the child (Scarr, 1992). This underestimates the complexities of a child's social life, giving little attention to the role of siblings, relatives and school friends and teachers, most of which being considered significant risk factors in DSH.

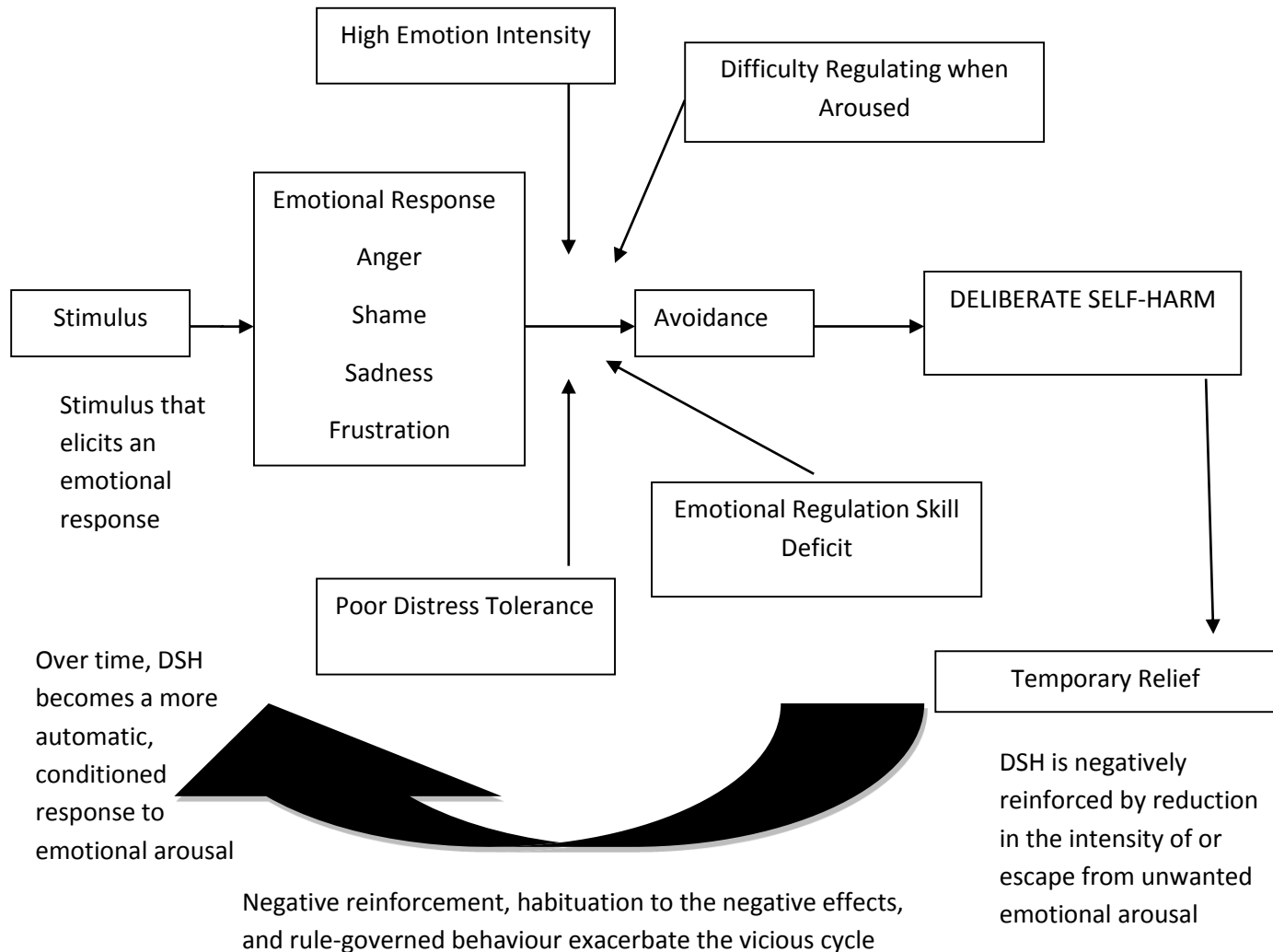
1.6.3 Behaviourism

1.6.3.1 Experiential Avoidance Model

The Experiential Avoidance Model (EAM) (Chapman, Gratz, & Brown, 2006) (see figure 1) is a behavioural theory of DSH, based on the premise that DSH is a negative reinforcement strategy used to reduce or even terminate unwanted emotional arousal. Experiential avoidance is defined as any behaviour that functions to escape or avoid unwanted internal experiences or external conditions that elicit them (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). The internal experience can include somatic sensations, thoughts, feelings or any other internal experience that is perceived as distressing. The experiential avoidance is the behaviours that are maintained through negative reinforcement and include alcohol/drugs, thought suppression, coping styles, avoidance of fear (i.e. person, place, object), etc. Drawing on the literature, EAM accepts the notion agreed across most psychological theories, that DSH helps individuals to manage, escape and regulate emotions (see Haines & Williams, 1997; van der Kolk, 1996; Nock & Prinstein, 2004). In support of this, research has found that in adolescent (Peterson, Freedenthal, Sheldon, & Andersen, 2008) and adult populations (Brown et al., 2002) the most commonly reported reason for DSH was to gain emotional relief or regulate emotion. In light of this, Chapman et al. (2006) suggested that DSH fits into the broader class of experiential avoidance behaviours.

Figure 1.

The Experiential Avoidance Model of DSH



EAM views DSH as being quite functional, in some respects, as it is very successful at terminating intolerable emotional states. The model postulates that DSH is maintained and strengthened through escape conditioning and powerful negative reinforcement. Essentially, there is an antecedent, being an emotionally evocative event, this triggers a strong emotional response, which is aversive to the individual. These internal experiences produce an urge to escape from the unpleasant state of arousal, leading to DSH, resulting in the experience of a reduction or complete elimination of the emotional arousal, the

DSH is negatively reinforced. This sequence produces a vicious cycle, with the negative reinforcement strengthening the association between intolerable emotional arousal and DSH, making the DSH an automatic escape response.

Chapman et al.'s (2006) EAM has a number of strengths both in terms of clinical implications and forwarding the understanding of DSH. Coming from a behavioural approach implies that its constructs are more scientifically robust and can be subjected to empirical testing. The model has been supported by Chapman, Specht, and Cellucci (2005) who used a number of validated measures (i.e. The Acceptance and Action Questionnaire, Hayes, Strosahl, & Wilson, 2003), reporting findings that experiential avoidance is the mediating factor between DSH and borderline personality disorder (BPD). One of the characteristics of BPD is affective instability due to a marked reactivity of mood and problems regulating emotions, i.e. anger, which brings into question the generalisability of this model, particularly in light of the DSM-V (American Psychiatric Association, 2013) separating DSH and BPD diagnoses.

EAM appears helpful in explaining the most commonly reported function of DSH in adults (Brown et al., 2002) and adolescents (Hawton, Rodham, & Evans, 2006). Many of the findings are based on self-report measures, which have attracted criticisms in the literature, due to the use of closed-questions when establishing the functions of an individual's DSH. The lack of empirical evidence regarding the functions of DSH means that this approach can only seem premature (Gratz, 2003) and restrictive. EAM is focused on one function of DSH, whereas research has established a number of functions (Gratz, 2003; Hawton et al., 2006), which DSH can be serving simultaneously (Suyemoto, 1996).

One of the strengths of the Behavioural theory is considered to be its utility in the here and now. In line with this EAM is able to draw on recent information in establishing the antecedent, behaviour and consequence, giving it good clinical utility. Nevertheless, this model does not appear to be able to account for premeditated DSH, which can be planned anywhere from an hour to a month

prior to the action (Madge et al., 2008). Research showed that in a study of adolescents, 48% had decided to DSH within an hour of the episode, 22.7% decided more than an hour and less than a week prior, whilst 29.3% decided to DSH more than a week before (Madge et al., 2008). Premeditation is just one factor that suggests the behavioural model of DSH does not fully explain this perplexing behaviour, further research is needed.

1.6.4 Cognitive Behavioural (CBT) Model

The cognitive-behavioural model proposes that thoughts and beliefs influence behaviour and emotion. Beck (1967) developed this model based on the notion that people develop certain core beliefs about themselves and others as a result of early experiences, and use these beliefs to process later experiences. These beliefs may become 'dysfunctional' if they are extreme, rigid and resistant to change. The theory states that these core beliefs represent a vulnerability factor that interacts with negative life events, contributing to the development of psychological disorders (Abramson, Alloy, & Metalsky, 1988; Alloy, Hartlage, & Abramson, 1988).

Beck's theory has a causal mediation component, being that an interaction between these dysfunctional core beliefs and negative life events/stresses should contribute to faulty cognitions, for example negative automatic thoughts about the self, world and future. In depression, for example, the self is often seen as worthless, the world may be seen as full of obstacles and the future can seem hopeless (Beck, Rush, Shaw, & Emery, 1979). This process is seen to present as a 'stream of consciousness' that is activated by stressors, particularly among cognitively vulnerable people (Eaves & Rush, 1984).

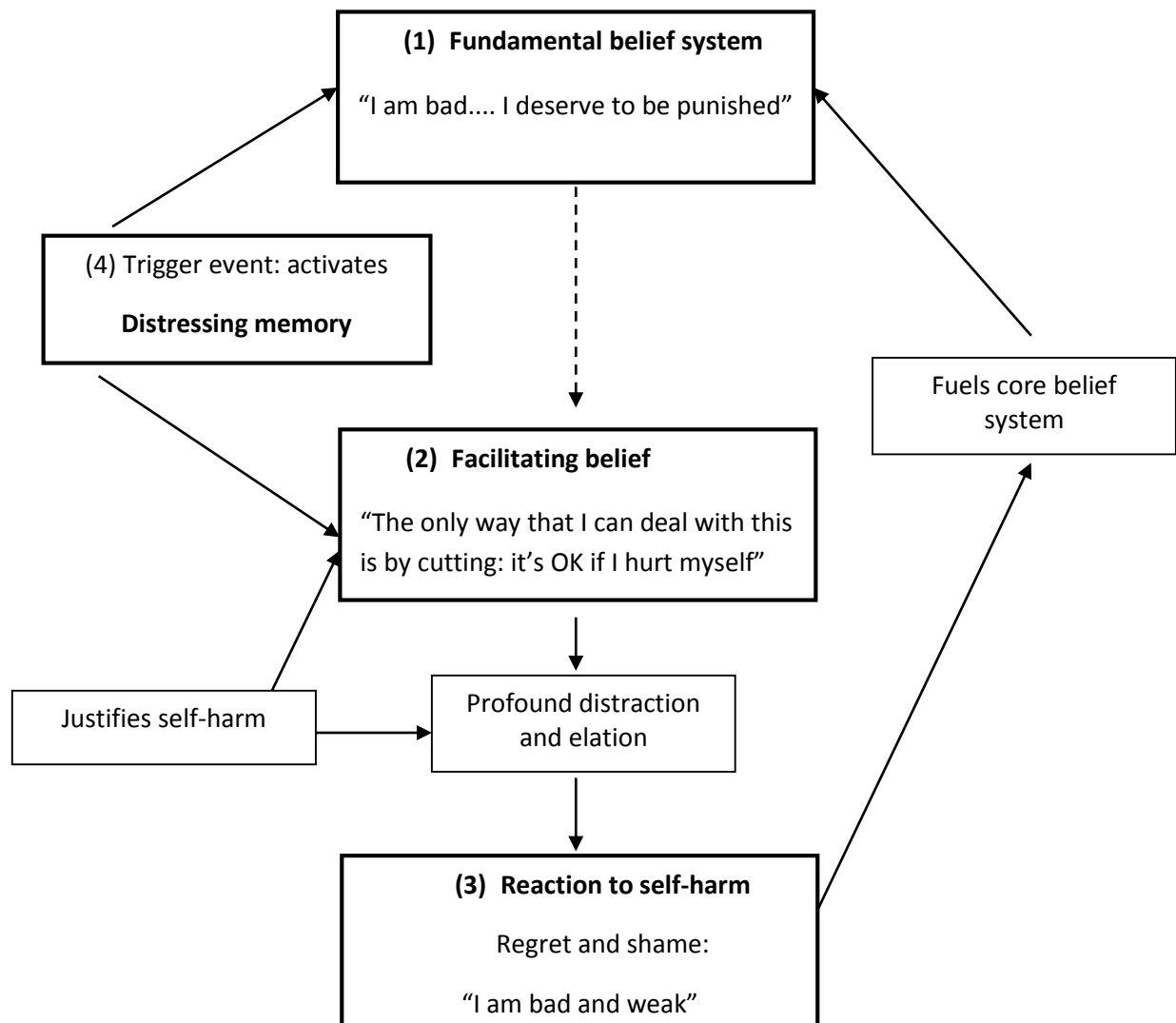
Research into the causal mediation component of Beck's theory in children and adolescents is lacking, mainly due to measures of core beliefs being substantially less established in young people than those designed for adults (Stallard & Rayner, 2005; Stallard, 2007). Abela (2001) investigated how

negative core beliefs interacted with negative life events in two group, 12-13 year olds and 8-9 year olds. They found that the interaction predicted an increase in depressive symptoms, in the 12-13 year group only. Debate regarding whether cognition temporally precedes and is therefore causal in affective responses, or vice versa (Lazarus, 1982; Zajonc, 1980, 1984) has yet to be resolved. What is clear is that cognitive theorists view cognitions, emotion and behaviour as reciprocally determining and interactive constructs (Beck, 1991). Cognitive theory also postulates content specificity of cognitions in specific disorders. Cognitions in depression are regarding loss and failure (Beck et al., 1979), cognitions in anxiety are regarding fear of physical or psychological harm or danger (Beck & Emery, 1985) and the cognitions in aggression are unfairness and hostility, with an emphasis on immediate gratification rather than on future consequences (Beck, Freeman, & Pretzer, 1990). This hypothesis has been criticised as psychological disorders are not considered to be mutually exclusive, and individuals with the same disorder do not necessarily share a common cognitive content. Jolly and Dykman (1994) found support for this hypothesis in adolescents.

Rudd, Joiner, and Rajab (2001), suggested that in adults who DSH the cognitions are suicidal, the beliefs are with regard to unlovability, helplessness and poor distress tolerance, the affect is mixed, the behaviours are death-related and there are physiological reactions. There is lack of research with regard to how applicable the cognitive-behavioural model is to DSH, particularly in adolescents. Kennerley (2004) proposed a cognitive-behavioural model of DSH that has been applied to adolescents (Tillotson, 2008), See Figure 2.

Figure 2.

The maintenance of self-injurious behaviour (Kennerley 2004)



- 1) Fundamental beliefs – considered to be the “powerhouse driving urges to self-harm” (Kennerley, 2004). These beliefs are about the self, and are thought to be absolute and generally reflect the individual’s sense of self, others and the world. They are thought to provide the foundation that motivates an individual to consider DSH as an option - for example: ‘I am bad, I deserve to hurt’ (Kennerley 2004). It is these thoughts that are considered to reinforce cognitive characteristics such as depression and

hopelessness, which further compound the lack of ability to find an alternative coping strategy.

- 2) Facilitating beliefs – provide the link between the cognitions and the behaviour, they provide the permission to indulge the urge to engage in DSH. The beliefs are considered to be statements that despite being culturally unacceptable in general, during times of stress or difficulty are permissible. Generated from the fundamental beliefs, these cognitions provide an option to deal with stress that is in line with the existing belief system at that specific time. The facilitating cognitions, including negative automatic thoughts, could be “I can’t tolerate this feeling and there is no other way to deal with it” (Kennerley 2004).
- 3) Reactions to DSH enable the cognitions (“I am bad and weak”) and behaviours to be maintained. Kennerley theorised that the reactions to DSH can validate the fundamental beliefs (i.e. proof of being bad) and facilitating beliefs (i.e. there is no other way of dealing with these feelings), in the short-term DSH provides a good distraction. These reactions to DSH activate increased vulnerability via validation of the negative beliefs, providing feedback to the fundamental belief system.
- 4) Flashbacks and intrusive recollections – can prove distressing for the individual, triggering events which additionally validate the fundamental beliefs.

One of the strengths of the cognitive behavioural model is its inclusion of the interactions between behaviours, cognitions, emotions and physiology. Kennerley’s (2004) model puts particular emphasis on the behaviours and cognitions, with little mention of emotions and physiology. Both cognitive and behavioural schools of thought have acknowledged the role of DSH in emotional regulation (Slee, Garnefski, Spinhoven, & Arensman, 2008, Chapman et al., 2006), yet this model fails to be explicit. Kennerley’s (2004) model has a strong emphasis on the behavioural aspects of DSH within a

cognitive framework. In terms of intervention, Kennerly (2004) reports that it is the behaviours that should initially be addressed i.e. alternative behaviours to DSH. It is acknowledged that the discovery of the belief system is vital in determining future vulnerability, and in effective treatment (Young et al. 2003).

1.7 Treatment

The research on psychological interventions for young people who DSH is severely lacking. Studies with adults have investigated specific psychiatric interventions (Choudhury, Hicks, & Kreitman, 1973; Hawton, McKeown, Day, Martin, O'Connor, & Yule, 1987), multi-faceted interventions (Allard, Marshall, & Plante, 1992; Deykin, Hsieh, Joshi, & McNamara, 1986) and psychosocial programmes (Ettlinger, 1975; Gibbons, Butler, Urwin, & Gibbons, 1978), none have been found to have an effect on repetition of DSH or have been too low on participants to detect genuine differences.

More recently research has given particular attention to Cognitive-Behaviour therapies (CBT, e.g. Linehan, Heard, & Armstrong, 1993; Raj, Kumaraiah, & Bhide, 2001). CBT interventions share therapeutic techniques, such as teaching skills (assertive communication, problem-solving skills, distress tolerance), the use of behavioural interventions (e.g. activity scheduling, exposure, removing reinforcers) and cognitive restructuring (Klonsky and Muehlenkamp, 2007). A manualised version of CBT for DSH has been trialled (Evans, Tyrer, Catalan, Schmidt, Davidson, Dent, Tata, et al., 1999; Tyrer, Thompson, Schmidt, Jones, Knapp, Davidson, Catalan, et al., 2003) with comparisons drawn against treatment as usual, results of these trials do not support the use of manualised CBT on the grounds of clinical effectiveness when treating patients with repeated DSH. However, this intervention was found to be more cost-effective than continuing with current practices (Byford, Knapp, Greenshields, Ukoumunne, Jones, Thompson, Tyrer, et al., 2003)

One form of CBT that has emerged as an effective treatment for DSH is dialectical behaviour therapy (DBT, Linehan, 1993a, 1993b). Initially, DBT was empirically tested and shown to be effective in treating adult women with

borderline personality disorder (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). Its effectiveness has since been replicated in five randomised clinical trials (see Linehan, Comtois, Murray, Brown, Gallop, Heard, et al. 2006; Muehlenkamp, 2006), which consistently demonstrated that DBT reduces the occurrence of DSH. It should be noted that when a reduction in DSH was the outcome, the decrease in this behaviour did not show significant differences for those in the DBT condition compared to the comparison conditions (e.g., Linehan et al., 2006).

Adaptions have been made to Dialectical behaviour therapy for use with adolescents (Miller, Rathus, Linehan, Wetzler, & Leigh, 1997) and reductions in DSH in outpatient and inpatient settings have been reported (Katz, Cox, Gunasekara, & Miller, 2004; Rathus & Miller, 2002). Despite DBT proving to consistently reduce DSH for both adults and adolescents, these reductions have not been found to be significantly better than those observed in alternative conditions (Nock, Teper, & Hollander, 2007).

Traditional CBT and DBT work towards developing alternative behaviours to replace DSH and cognitive restructuring, DBP further attends to acceptance, patients are taught to accept and tolerate one's current experience or circumstances rather than trying to change them (Nock et al., 2007). Unique to adolescent DBT is the inclusion of family focused components which see families learning skills, including validation of self and others, common adolescent-family dilemmas and how to use the behavioural principles (see Miller et al., 2007). DBT with adult populations is recommended to take place over a year, with adolescents, Miller et al. (2007) have developed a 16 week programme, currently a DBT programme is being evaluated which see adolescents participating in an intensive group of 4 hours per day, 5 days per week for 4 weeks (developed for high-risk inpatients). One must question the utility of such an intense programme when mental health difficulties and lifespan development are taken into account.

One possible reason for the moderate outcomes of the currently used therapies is the focus on cognitive maintenance factors as opposed to exploring the schemas that are hypothesised to underlie many of the DSH functions (Linehan, 1993). Young et al. (2003), made a plea for a primary focus on early maladaptive schemas during psychotherapy. This is not to say that CBT is blind to underlying schemas, but with few concrete skills to assess and tackle them, they commonly go unexplored and untreated. Young's diversified schema taxonomy and the development of the YSQ provides valuable tools to identify and work with specific EMS.

1.8 Schema Theory

Young (1990) originally developed his integrative model of Schema Therapy in part to address the needs of patients for whom cognitive-behavioural therapy (CBT) was unhelpful, more specifically, those with long-standing chronic characterological disorders (Young et al., 2003). Young et al. (2003) cited a number of reasons why CBT was unhelpful for these people, including the assumptions that patients have access to their thoughts and feelings, at least to some extent, and that individuals are willing and able to take part in treatment protocols (i.e. CBT homework), or even want to help themselves as opposed to coming to therapy for consolation from the therapist. To facilitate the treatment and conceptualisation of such individuals, Young expanded on the short-term cognitive model (Beck et al., 1979) in the development of a set of theoretical constructs, which he called early maladaptive schemas. Before focussing on Young's conceptualisation of schema specifically, it is useful to consider more generally how we define a schema.

1.8.1 Concept of an EMS

The concept of a Schema was first introduced to Cognitive therapy by Aaron Beck (1967), who credited Piaget (1948) with originally using the word schema to describe cognitive structures. Beck added his own definition that "a schema is a structure for screening, coding and evaluating the stimuli that impinges on

the organism. It is the mode by which the environment is broken down and organised into its many psychological facets. On the basis of schemas, the individual is able to.....categorise and interpret his experiences in a meaningful way". Within the literature, schemas have been defined in a number of ways, and to add further confusion appears to be used interchangeably with the term Core Belief (e.g. Padesky, 1994; Weishaar & Beck, 2006). Conceptually, this leaves a certain level of ambiguity between the two. Despite their close association, a schema appears to be a cognitive, information processing structure which works according to the pre-existing beliefs contained within it. A core belief, on the other hand, is more generally referred to as an unyielding belief held by the individual, which may be contained within the schema. Further, core beliefs and schemas can be differentiated by their activation. The core belief, as proposed by Beck (1976) is thought to be event specific, i.e. reliant on a critical incident, and therefore conditional, whilst a schema is thought to be unconditional (Schmidt et al., 1995), and as such triggered more frequently. Cognitive theorists (Beck et al., 1990; Stein & Young, 1993; Young, 1990) have viewed schemas as important vulnerability factors in the development of psychopathology.

1.8.2 The Theory of EMS Development

Schema Therapy builds on traditional cognitive therapy (Beck et al., 1979) by taking a more systematic approach, combining elements from Gestalt therapy, attachment theory, constructivist, and psychodynamic therapies. Although Schema therapy overlaps with these other models, the schema model is considered to be different in important respects and does not consider any other school to overlap completely (Young et al., 2003). Regardless of drawing on a variety of other models, Schema therapy is not considered to be an eclectic therapy as it is based on a structured model (Young et al., 2003). Drawing on the evidence of the various models and clinical observations, Young et al. (2003) propose that there are five core emotional needs that are universal and underpin psychological wellbeing. They include the need for secure attachment to others (including safety, stability, nurturance, and acceptance); autonomy, competence, and a sense of identity; freedom to express needs and emotions;

spontaneity and play; and an environment with realistic limits that develops self-control. They theorised that a psychologically healthy individual will be able to get their needs met in an adaptive way, enabling them to develop a generally healthy view of themselves, the world and others.

Schema theory postulates that a combination of a child's temperament and "toxic childhood experiences" (p10) (ongoing patterns of adverse experiences with family members or peers) will result in a child's core emotional needs going unmet in an adaptive manner (Young et al., 2003), leading to the development of EMS's. Young and colleagues hypothesised that there were four early life experiences that foster the development of EMS's. The first type is *toxic frustration of needs*; characterised by an environment that lacks stability, understanding and love. The second type is *traumatisation or victimisation*; in which the child will experience harm or be victimised. The third type is characterised by too much of a good thing where the child is coddled and indulged, thus the child is unable to develop autonomy. The final type is *selective internalisation or identification with significant others*; the child internalizes the parents thoughts, feelings, behaviours and experiences (e.g. a child learning from an over-anxious parent that the world is dangerous).

The EMS's are established during childhood and adolescence, and just as each individual's early experiences are unique, so are the EMS that develop. Made up of broad, pervasive themes or patterns, they comprise of unique memories, emotions, cognitions, and bodily sensations, the EMS become stable over time and are used as a templates for life, filters through which future relationships (with oneself and others) are experienced, navigated and interpreted.

Developed during childhood and adolescence, the EMS are thought to extend and elaborate leading them to become dysfunctional to a significant degree (Young et al., 2003). Young et al. (2003) suggested that these self-defeating emotional and cognitive patterns have shared characteristics from person to person, which means they can be characterised into 18 EMS's, and further grouped into the five broad categories of unmet emotional needs called "schema domains".

1.8.3 Maladaptive Coping Styles

Schema therapy postulates that Early Maladaptive Schemas (EMS) can engender overwhelming, intense emotions, which can be experienced as intolerable. In order to adapt and ultimately avoid the EMS, individuals develop Maladaptive Coping Styles (MCS). These coping styles bring temporary relief from the EMS, which does not heal the EMS but serves as a part of the EMS perpetuation process (Young et al., 2003, pp32). Schema therapy makes a distinction between an EMS and the strategies adopted to cope with the EMS. The EMS itself includes memories, bodily sensations, emotions and cognitions, it does not contain the behavioural responses the individual utilises. Behaviour is not part of the schema, it is part of the coping response (Young et al., 2003). Despite most of the coping responses being behavioural, they can additionally manifest through cognitions and affect. Individuals will utilise a variety of coping response for the same EMS, dependant on the situation or life stage, the EMS is thought to remain stable but the coping strategy changes and adapts. Different people can respond to the same EMS in completely different, even opposite, ways.

It is thought that during childhood the presence of an EMS poses a threat, in the face of which organisms will respond with fight, flight or freeze. The coping strategies are based on this premise, overcompensation is fight, avoidance is flight, and surrender is freeze. Schema Surrender – An individual yields to the EMS, they do not try to avoid or fight it. They accept the EMS is true and feel the full emotional force, thus acting in ways to confirm the EMS is true. Schema Avoidance – An individual will do everything in their power to avoid the EMS being activated by living as if it does not exist. At times when the EMS has the potential to arise distraction techniques are used, including self-destructive behaviours. Schema Overcompensation – An individual will fight the EMS by acting as if the opposite were true, doing everything in their power to be as different to the child they were when the EMS developed. For example a child that was made to feel worthless will try to be perfect in adulthood. Overcompensation could be viewed as the healthiest of the coping styles as it is

working/fighting against the EMS, however the overcompensation will be taken too far.

In the face of EMS threat a child is thought to unconsciously adopt a combination of the coping strategies, only one is thought to be used at any one time, but it can change between situations and different EMS's. Young et al. (2003) theorised that in childhood the coping styles are adaptive and even healthy mechanisms to ensure survival. Into adulthood the coping style becomes maladaptive as it perpetuates the EMS, the individual's situations and life stages change but coping strategies keep the individual "imprisoned in their schema" (pp. 33).

1.8.4 Schema Domains and EMS's

The Disconnection and Rejection domain relates to the unmet needs for love, stability, nurturance, safety and belonging. This domain includes the following EMS's – *Abandonment/Instability (AB)* – Emotional support and practical protection from others is perceived as unreliable. Others are emotionally unstable and unpredictable, their presence is sporadic, they may die soon, or they may leave for a better option. *Mistrust/Abuse (MA)* – The expectation that others are intentionally trying to hurt, cheat, manipulate, lie, take advantage or humiliate the individual. *Emotional deprivation (ED)* – The expectation that the normal degree of emotional support will not be met by others. Three major areas of deprivation highlighted are: Deprivation of nurturance – absence of warmth, attention, companionship from others. Deprivation of Empathy – Absence of understanding, listening, mutual sharing from others. Deprivation of Protection – Absence of guidance, protection, strength from others. *Defectiveness/Shame (DS)* – The feeling that one is unimportant, bad, invalid, unlovable to others. Making the individual hypersensitive to criticism and rejection. Comes with a sense of shame with regard to one's flaws, which could be public (e.g. social awkwardness) or private (anger impulses). *Social*

isolation/Alienation (SI) – The feeling that one is different from others and does not fit in to any group, a feeling of being isolated from the rest of the world.

Domain 2 – Impaired Autonomy and Performance, relating to expectations about oneself and the environment, one's ability to independently function, survive and succeed, including the EMS's – *Dependence/Incompetence (DI)* – The expectation that one is incompetent, so unable to carry out life's tasks and responsibilities without considerable help from others. *Vulnerability to harm or illness (VH)* – Exaggerated fear that an imminent catastrophe is about to hit and the individual is powerless to prevent it. The fears include 1). medical catastrophe i.e. heart attack, 2). Emotional catastrophe i.e. going crazy, 3). External catastrophe i.e. natural disaster. *Enmeshment/Undeveloped self (EM)* – One remains socially and individually underdeveloped due to an excessive over-involvement/closeness with significant others. A sense that one cannot be happy or survive without others, which may lead to feelings of emptiness. *Failure to Achieve (FA)* – The expectation that failure is unquestionable.

Domain 3 – Impaired Limits, relating to deficiency in limits regarding the self and others, leading to difficulty respecting others rights, cooperation, commitment and setting realistic goal, including the EMS's – *Entitlement/Grandiosity (ET)* – The belief that one is superior to others, should have special rights and not bound by the rules of social interaction. The individual would often disregard what is realistic or reasonable in light of what one wants. *Insufficient self-control/Self-discipline (IS)* – An overarching difficulty is exercising self-control and frustration tolerance to achieve goals or to restrain the excessive expression of emotion.

Domain 4 – Other-Directedness, relating to an excessive focus on the needs and desires of others at personal expense, to gain love and approval, EMS's include – *Subjugation (SB)* – Succumbing to perceived coercion, leading to excessively surrendering control to others to avoid being abandoned or experiencing anger. Two major forms of subjugation outlined: 1). Subjugation of needs – suppression of own needs, and 2). Subjugation of emotions – suppression of emotions, particularly anger. *Self-sacrifice (SS)* – voluntarily meeting the needs of others at the expense of the needs of the self. Main

reasons being to avoid guilt of feeling selfish and to avoid the pain of others. *Approval-seeking/Recognition-seeking (AS)* – Excessive need for approval and recognition from others, at the expense of developing a stable sense of self. Self-esteem can be reliant on others as opposed to one's own natural inclinations.

Domain 5 – Over Vigilance and Inhibition, relates to an excessive emphasis on suppressing one's spontaneous feelings, impulses and choices, and meeting rigid, internalized rules, including EMS's – *Negativity/Pessimism (NP)* – A pervasive focus on the negative aspect of life (i.e. death, guilt, loss) and minimisation of the positive. The expectation that eventually everything will go wrong, in all aspects of life. *Emotional inhibition (EI)* – The inhibition of spontaneity (action, emotion, communication) for the fear of meeting the disapproval of others, losing control or feeling guilt. Most commonly seen in the inhibition of: 1). Anger 2). Positive emotions (joy, happiness), 3). Expressing feelings or showing vulnerability. *Unrelenting standards/Hypercriticalness (US)* – The belief that one must meet excessively high standards of behaviour and performance to avoid being criticised. Can result in excessive activity and criticalness of self and others. *Punitiveness (PU)* – The belief that mistakes should be met with harsh punishment. Characterised by anger, intolerance, punitiveness, and impatient with the self and others for not meeting the standards.

1.8.5 Early Maladaptive Schema's and Adolescence.

The research on EMS's in youth is considered to be lagging in comparison to that of adult samples. Even so, it is theorised that EMS's originate in early life, born from familial adversity in childhood. Only a small number of studies have tried to address the first key assumption of schema theory, being that EMS's originate in childhood. Stallard (2007), in a study carried out over a six month period, with non-clinical, 9/10 year olds, found that EMS's were present and moderately stable over time. However, methodological issues mean the findings need to be taken with caution. For example six months is not

considered long enough to view any changes, particularly due to the unlikelihood that any developmental variation will have occurred in this time. Further, EMS's were measured using a highly simplified version of the YSQ, that condensed each EMS into one question, as acknowledged by the author this may not have captured the multi-faceted nature of EMS's. In some support of Stallard's findings, Rijkeboer and de Boo (2010) reported that a sample of young children (8-13yrs) presented with some of the same EMS's as adolescents and adults, however, only eight of the 15 EMS's were supported. This finding was a result of some of the EMS's (i.e. Enmeshment and Self-Sacrifice) being associated with positive affect in childhood, suggesting that at this time, these schemas are not maladaptive. It is hypothesised that this might be the case with enmeshment, as autonomy is a developmental task of adolescence, whilst in childhood a close relationship with parents is protective. Additionally, Self-Sacrifice, which includes the need to please others, could be viewed as pro-social in childhood (Rijkeboer and de Boo, 2010).

Research on the presence of EMS's in adolescence has reported a less modest association than those found in childhood. A number of studies have found all 15 EMS to be present in adolescent samples (van Vlierberghe, 2008; Van Vlierberghe, Braet, Bosmans, Rosseel, Bogels, 2010), and the importance of EMS's in the development and maintenance of psychiatric symptoms has been suggested and investigated. Broadly, a number of studies have found significant differences between clinical and non-clinical groups, with referred groups displaying a higher severity of EMS's (Turner, Rose, & Cooper, 2005; Van Vlierberghe & Braet, 2007; Van Vlierberghe et al., 2010), suggesting a clear association of EMS's and psychopathology.

Young (1990) theorised that EMS's that are congruent with psychological symptoms should correlate significantly with those symptoms. A small number of studies have investigated whether particular schema contents preferentially relate to specific symptomatology in adolescents, but most of the studies have been carried out with adults. Some of the studies investigating adult samples

have found particular schemas do discriminate between different types of psychological disorders (Schmidt et al., 1995; Waller, Meyer, & Ohanian, 2001; Waller, Shah, Ohanian, & Elliott, 2001). Overall, major differences on the EMS identified in individuals sharing the same psychological disorder are apparent (see Calvete, Estevez, de Arroyabe, & Ruiz, 2005). A number of limitations have been highlighted, including a lack of statistical control, i.e. correlation, which does not account for overlap of constructs. Making comparisons between studies is difficult with, for example, inconsistencies between the instruments used to assess psychopathology, non-referred versus referred samples under investigation, and the use of self-report instruments when trying to measure an unconscious construct.

Despite the limitations involved in adult samples utilising the YSQ-S, a trend appears to be emerging. The EMS Abandonment has been found predominantly in depression (e.g. Petrocelli, Glaser, Calhoun, & Campbell, 2001; Stopa et al., 2001) and the EMS's Vulnerability to Harm and Abandonment are predominant in anxiety (Glaser, Campbell, Calhoun, Bates, & Petrocelli, 2002; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). EMS specificity is even less clear in adolescent samples, the same limitations apply plus the lack of research in this area at this time.

Within the research on adolescents and psychopathology, the same limitations apply, plus the lack of a substantial research base. Within the studies that have investigated these links, results vary as each study found differentially associated EMS's for each symptomatology that were not consistent between studies, nonetheless, some overlap was seen. Van Vlierberghe and Braet (2007) considered adolescent psychopathology more broadly in terms of internalising and externalising problems. They found that internalizing problems are predominantly associated with the EMS's Social Isolation and Vulnerability to Harm, whilst externalizing symptoms are characterised by the EMS's Entitlement and Dependence/Incompetence. Using internalising versus externalising problems as a framework, there are studies whose findings add some support, for example Muris (2006) found associations between disruptive

behaviour and both Dependence/incompetence and Entitlement, whilst, for example, Welburn et al. (2002), Van Vlierberghe et al. (2010), Van Vlierberghe and Braet (2007) and Muris (2006) have found the EMS's Social Isolation and Vulnerability to Harm present in internalising problems (i.e. anxiety, obesity, depression).

Regardless of the limitations, the findings in adolescent samples are in keeping with Young's (1990) theory. Research is slowly emerging to suggest that EMS's are more prevalent in clinical populations than non-clinical and thus associations between EMS's and psychopathology have been made in adolescents. According to Schema Theory (Young et al., 2003) EMS's are perpetuated through self-defeating life patterns, cognitive distortions and maladaptive coping styles, leading directly and/or indirectly to psychological distress and potentially to personality disorders in adulthood. The research regarding cognitive distortions (see Beck (1967) for full description dysfunctional cognitions) in adolescents indicates that adolescents and adults show a similar pattern of dysfunctional assumptions and automatic thoughts (Harrington, 1993). Leitenberg, Yost, and Carroll-Wilson (1986) found that adolescents experiencing depression and/or anxiety had higher rates of cognitive errors, such as catastrophising, than non-clinical comparisons. Similarly, depressed children have been found to have a greater number of negative automatic thoughts than non-depressed children (Laurent & Stark, 1993). The growing research base with regard to the presence of EMS's in adolescents, the links to psychopathology and the theorised trajectory between EMS's in adolescents and severe and chronic characterological disorders in adulthood, highlights and justifies further research into EMS in young people.

2. Method

2.1 Epistemology

The epistemological position of the present study falls within the post-positivist tradition, the belief that there is a reality independent of the individual, but that direct access is limited or mediated by the “flawed human intellectual mechanism” (Guba & Lincoln, 1994). Within this position objectivity, replication and falsification are utilised in an attempt to gain more accurate representations of “truth”. Objectivity, ability to replicate and falsify, will be achieved in this study via the use of standardised assessment tools, the minimisation where possible of research bias, and replicable data analysis.

2.2 Participants

2.2.1 Sample Size

The primary outcome measure for this study is the Young Schema Questionnaire-short form (YSQ-S). Previous research using the YSQ-S within adolescent populations is limited, however, findings suggests the YSQ-S has psychometric utility within this population (Van Vlierberghe et al., 2010; Van Vlierberghe, Braet & Goossens, 2009). Schmidt et al. (1995) found that it demonstrated adequate test–retest reliability, (coefficients ranging from .50 to .82) and internal consistency (alpha coefficients ranging from .83 to .96).

Based on previous literature using the YSQ-S with adolescent populations (Van Vlierberghe et al., 2009), a medium effect size of 0.5 was assumed, with an alpha of 0.05 and power of 0.8. A priori calculation of sample size using G*Power software package (Faul, Erdfelder, Lang, & Buchner, 2007) was estimated at a total of 128 participants.

2.2.2 Recruitment

Participants were recruited via internet web forums and social networking sites, identified via popular internet search engines (e.g. Google, Yahoo). Each web forum had an administrator who managed the content on the site. For each forum the administrator was contacted and permission sort to recruit for this study. An equal number of the forums did and did not allow the request to be advertised on their site, various reasons were given for a negative response. Accounts were set up on the social networking sites Facebook and Twitter. To use each site as effectively as possible in finding the largest audience, in part, snowball sampling was utilised (see section 2.2.4 on snowball sampling).

The recruitment procedure differed slightly from one media to another, sites such as Twitter restrict the number of words allowed in each “tweet,” however, the overarching recruitment process was as follows. Once permission was gained from the administrator (if necessary), a message was left on the site, this message contained an invitation to take part in a piece of research followed by: a brief explanation of the research, what was involved in taking part, how long it would take and the offer of entering an optional prize draw for participation. Following this information was the SurveyGizmo link to the full study information, consent statement, survey and debrief, in line with the BPS “Guidelines for Ethical Practice in Psychological Research Online” (2007).

2.2.3 Inclusion/Exclusion Criteria

Participants were considered eligible to be included in this study if they met the following criteria:

- 1) Aged between 13 and 18 years old
- 2) Provided informed consent.

Due to the nature of online recruitment, a number of variables could not be controlled for but were assumed, for example, participants were honest with regard to their age, all the information had been read prior to giving consent, and English was a first language. The survey was only available in English, due to a limitation on resources and difficulties ensuring cross-language comparability. Additionally, all the surveys were screened through the Flesch-Kincaid test (detailed below) to ensure the appropriate comprehension level was achieved, for individuals whom English was a first language. Therefore, the survey could be considered too demanding on comprehension for anyone whom English was not a first language and therefore their exclusion was assumed.

2.2.4 Snowball Sampling

By definition, snowball sampling is a technique used for finding research participants. The premise being that one participant passes the information about the research onto another participant, who in turn passes the information onto a third, and so on (Vogt, 1999). This method takes advantage of the social network of an identified participant, thus providing the researcher with an ever-expanding set of contacts (Thomson, 1997). Sampling in this way has a number of advantages, one being the access it can potentially provide to previously hidden populations. These populations may be considered deviant or vulnerable, for example those stigmatised in society, which in turn makes them reluctant to take part in studies (Atkinson & Flint, 2001). Additionally, like self-harmers, they could be inaccessible through healthcare associations as they do not present with their injuries. A risk of snowball sampling is a bias towards the inclusion of participants with inter-relationships, this may over-emphasise cohesiveness in social networks (Griffiths, Gossop, Powis, & Strang, 1993) and potentially miss isolated individuals who are not connected to that network (Van Meter, 1990). This pitfall may be potentially avoided by accessing a number of diverse networks, specific and nonspecific to the topic, to implement this method of sampling.

2.2.5 Using the internet for psychological research

According to the Internet World Stats (2012), there are approximately 2,405,518,376 internet users worldwide. Despite this, conducting research via the internet is relatively new, however, there is a growing body of evidence supporting the notion that, given the appropriate methodology is utilised, web based research is both valid and viable. There are many advantages to conducting research in this way for some research questions (see, e.g. Birnbaum, 2004). Advantages include reduction in costs and the variety of ways to access participants (e.g. email, forums, social networking), which could potentially increase the sample size. An additional advantage is the level of anonymity achieved, a level not normally possible in laboratory based/face-to-face studies. This anonymity can increase the levels of participant disclosure and honesty, particularly when sensitive information is being sought (Buchanan, Ali, Heffernan, Ling, Parrott, Rodgers, & Scholey, 2005; Rodgers, Buchanan, Scholey, Heffernan, Ling, & Parrott, 2003).

It could be argued that psychological assessments designed to be completed using a paper and pencil method may not be valid when completed on-line. Smith and Leigh (1997) directly compared two ways of completing a paper and pencil designed psychological questionnaire, group A completed it online verses group B who completed it in its original format. They found no significant differences in answers to the individual items. Further, Buchanan and Smith (1999) found a trend toward a web-based test having better psychometric properties and slightly better reliability than when administered face-to-face. It must be noted that the validity of web-based questionnaires is still at threat, two major reasons being (a) the presentation format and (b) the nature of the participants and the circumstances under which they complete the questionnaire.

2.3 Measures

2.3.1 Young Schema Questionnaire - Short Form (YSQ-S)

The Young Schema Questionnaire (YSQ: Young, 1990, revised 1991) exists in two formats; a long (205 items) and short version (75 items). The long version was designed to measure 16 Early Maladaptive Schemas (EMS) (Approval Seeking/Recognition Seeking and Punitiveness have since been added), whilst the short form only includes the items most heavily loaded onto 15 factors (of the original 16 proposed) (Schmidt et al., 1995). The Social Undesirability schema was not included in the short-form as it was not found to be reliable. The 15 EMS's that the YSQ-S reflects are as follows: Abandonment, Emotional Deprivation, Defectiveness/Shame, Social Isolation, Dependence / Incompetence, Vulnerability to Harm, Enmeshment, Failure to Achieve, Entitlement, Insufficient Self-Control/Self-Discipline, Subjugation, Self-Sacrifice, Emotional Inhibition and Unrelenting Standards (see section 1.8.4 Schema Domains and EMS's for details). Young et al. (2003) theorised that EMS's develop pre-verbally (p29) and remain stable over time. This is reflected in the statements of the YSQ-s, which are with reference to varying timescales, i.e. over their lifetime to current concerns.

The YSQ-S has been validated and used extensively with clinical and non-clinical adult populations, more recently research utilising the YSQ-S with both clinical and non-clinical adolescent populations has been emerging with positive results. The YSQ-S has been found to have psychometric utility within this population (Beckley & Stopa, unpublished, Van Vlierberghe et al., 2010; Van Vlierberghe et al., 2009). Research has demonstrated that it has adequate test-retest reliability, (coefficients ranging from .50 to .82), internal consistency (alpha coefficients ranging from .83 to .96) and it possesses good convergent and discriminant validity with regard to measures of psychological distress (Schmidt et al., 1995, Van Vlierberghe et al., 2009).

A number of studies have focused on the structural properties of the YSQ-S (Van Vlierberghe et al., 2009, Waller, Meyer, Beckley, Stopa, & Young, unpublished), these studies have shown that factor analysis confirms the 15 schema first order model is retained when adolescents are included. This further supports the contention that, with amendments made to the language making it age appropriate, the YSQ-S is a clinically useful tool among individuals aged 12 years and upwards. Adding to the utility of the YSQ-S, Lee, Taylor, and Dunn (1999) found the factor structure to be stable across clinical samples from different countries (Baranoff, Oei, Ho Cho, & Kwon, 2006) and for individuals with varying degrees of psychopathology. Based on the strengths of its psychometric and clinical properties, the YSQ-S is considered a more valid and useful psychometric measure than the Schema Questionnaire for Children (SQC) (Stallard & Rayner, 2005) within children/adolescent populations.

The YSQ-S has been shown relevant for adolescents with and without psychopathology (Van Vlierberghe et al., 2009), with EMS's presenting in all populations (clinical and non-clinical), exaggerated in individuals with symptomatology (Van Vlierberghe et al., 2009). A number of studies (Schmidt et al., 1995; Waller et al., 2001; Waller et al., 2001) have found the YSQ-S has been able to discriminate between psychological disorders in adolescents. At this time, the evidence is not strong, yet there is a growing body of research which finds specific schemas are more closely related to specific forms of psychopathology (Van Vlierberghe et al., 2009).

2.3.2 Deliberate Self-Harm Inventory (DSHI)

The assessment of self-harm continues to be an underdeveloped area, possibly in part due to the lack of consensus on definition and operationalisation of DSH. A deficit, which leaves this clinically important phenomenon without a well-established empirically validated assessment tool (Latimer, Covic, Cumming, & Tennant, 2009; Zlotnick et al., 1996). In order to assess DSH in adolescents, researchers have used a variety of techniques. A number of major studies (e.g.

De Leo & Heller, 2004; Ross & Heath, 2002) have relied upon a single question to establish DSH, some with a follow up to gain more information. Others have used structured interviews (e.g. Functional Assessment of Self-Mutilation), or questionnaires, either made up for the purpose of the individual research (Hawton et al., 2002, Best, 2009) or ones which have undergone validation with the target group e.g. the Deliberate Self-Harm Inventory (DSHI, Gratz, 2001). Gratz (2001) designed the DSHI to fill the gap in available assessment tools for DSH. The DSHI is a behaviourally based tool which assesses for non-suicidal self-harm. It has been used within adult and adolescent populations. Testing has shown it to have high internal consistency ($\alpha = .82$), adequate test-retest reliability and adequate construct, discriminant and convergent validity within a population of university students.

The DSHI is a 17-item questionnaire that clusters 16 topographically similar types of DSH behaviours into each question. The behaviours cited are based on the literature, testimonies, and clinical observations. In a study of 15 year olds, Lundh et al. (2007) shortened and simplified the DSHI to make it more accessible to younger populations. The changes made include: a) Each question required participants to respond to one of four possible responses with regard to whether they had “never”, “once”, “more than once”, or “many times” intentionally engaged in the corresponding self-harm behaviour; b) Items from the DSHI were combined to reduce the number of questions from 17 to 15; c) a 16th question was added asking if any of the behaviours had ever resulted in medical treatment. Due to the target population of the current research, the media by which the questionnaire was delivered, and the time scale it covers, enabling it to pick up on a coping strategy as opposed to a one off experiment, Lundh et al.’s (2007) DSHI-short version was used.

2.3.3 Brief Symptom Inventory (BSI)

The BSI (Derogatis, 1993) was developed as a short version of the adult inventory, Symptom Checklist-90-Revised (SCL-90-R, Derogatis, 1977). The

BSI has been extensively used in research with adolescents (e.g. Hasking, Coric, Swannell, Martin, Know-Thompson, & Frost, 2010), and normative data for clinical and non-clinical samples of adolescents (over 13 years) (Derogatis, 1993; Derogatis & Spencer, 1982) has been developed.

The BSI is a self-report inventory designed to measure general psychopathology in adults and adolescents. It is made up of 53 items, each one is rated on a five-point Likert scale of distress ranging from 0 (not at all) to 4 (extremely). The BSI covers nine primary symptom dimensions: Anxiety, Depression, Hostility, Interpersonal Sensitivity, Obsession-Compulsion, Paranoid ideation, Phobic anxiety, Psychoticism, Somatisation and three global indices of distress: Global Severity Index (GSI), Positive Symptom Distress Index, and Positive Symptom Total. The GSI is a combination of the numbers of symptoms and the perceived intensity of the distress, and is considered to be the best indicator of current levels of distress (Derogatis & Melisaratos, 1983).

The BSI has high internal consistency and reliability for all nine dimensions, ranging from .85 on Depression to .71 on Psychoticism, this finding is supported by several independent studies (Croog, Levine, Testa, Brown, Bulpitt, Jenkins, & Williams, 1986; Aroian & Patsdaughter, 1989). Test-retest reliability for the nine dimensions ranges from .91 (Phobic Anxiety) to .68 (Somatization), and .90 for the GSI.

The BSI has shown to have impressive discriminant, construct, predictive and convergent validity, with a great many studies testing its validity in a wide variety of populations (see Derogatis, 1993 for complete breakdown). For example convergent validity; correlations between the BSI the Wiggins Content Scales and the Tryon Cluster Scores from the MMPI ranging from .30 to .72, the most relevant score correlations averaging above .50 (Conoley & Kramer, 1989; Derogatis, Rickles, & Rock, 1976 in Derogatis, 1993). Further, correlations between the BSI and SCL-R-90 were .92 to .99 (Derogatis, 1993). Due to its extensive validation with adolescent samples, limited length, when compared to alternative measures, and its measure of overall levels of distress, the BSI was utilised.

2.4 The Flesch-Kincaid test

All questionnaires and information sheets were screened through the Flesch-Kincaid test, which is a readability test designed to indicate the comprehension difficulty of a passage of contemporary academic English. The test works on different weighting factors, essentially the core measures are word length and sentence length. The results of the test correlate inversely, a high score on the reading test equates to a lower score on the Grade Level test, for example a score of 90 to 100 would be easily understandable for a student approximately 11 years old, whilst a score of 60 to 70 would be more applicable for a 13 to 15 years age group. When tested, the content of the surveys for this study came out at being easily understandable for individuals aged 12-13 years old.

2.5 Procedure

2.5.1 Ethical Issues

Within this study, several ethical issues needed to be considered and addressed. Firstly, the issue of consent, parental and informed. With this study being internet based and a self-selecting sampling, the chief investigator had limited control over who took part, in terms of vulnerability for example. In light of this, all reasonable attempts were made to provide participants with all the information they needed to make an informed decision with regard to consent. In line with the National Children's Bureau's Guidelines for Research (Shaw, Brady, & Davey, 2011) and the BPS Guidelines for Ethical Practice in Psychological Research Online (2007), participants were given full details of the research, a recommendation to consider participation for 24 hours prior to taking part, plus a recommendation to discuss participation with a caregiver. The email addresses of the Chief Investigator and Principle Investigator were provided and participants were encouraged to make contact with any questions prior to or following participation.

Secondly, no identifiable information was gathered in order to protect confidentiality and anonymity. It was advised that email addresses provided for participation into the prize draw did not contain a real name. The email addresses were gathered separately from the survey so no association could be made. This in itself could create an ethical issue, as with no way to identify a participant's survey, there would be no option to withdraw from the study. To overcome this issue participants were asked to provide a unique password that only they knew, this password was kept with their survey, enabling the identification of their data and removal if necessary. A two week cooling off period was given, during which participants could withdraw their data.

The third issue was a potential risk that participants may be distressed by the content of the questionnaires. It has been argued that filling out a questionnaires concerning DSH might lead to suicidal impulses, however, previous research has not supported these concerns (Gould, Marrocco, Kleinmann, Thomas, Mostkoff, Cote, & Davies, 2005). Regardless, precautions were taken; the information sheet clearly stated that if participants experienced distress due to the content of the questionnaire they should stop their participation immediately and refer to the debrief. Intermittently through the survey participants were encouraged to consider their well-being and decide if "Yes" they wished to continue or "No" they did not. If participants chose "No", they were directed to the debrief, containing details of online support networks and support phone lines. This information was also displayed to those who completed the survey.

2.5.2 Procedure

Initially permission was gained from the administrators of the Internet web forums and specific accounts were set up on Twitter and Facebook. Procedures altered slightly between media, however the general procedure was as follows: Conversation thread/posts were places online. The thread contained an invitation to take part in a piece of research followed by: a brief

explanation of the research, what was involved in taking part, how long it would take and advice to consider participation carefully. Following this information, there was a link to the SurveyGizmo survey where participation in the research began. This first page gave details of the research, how long participation would take, what was involved, what would happen to the data, any risks involved, information regarding withdrawing from the study, recommendation to think about participation and contact details. At the bottom of this page was a consent statement and box that needed to be checked in order for them to continue. The first questionnaire was demographics, it included details such as age, sex, ethnicity and school attendance, followed by the DSHI, YSQ-S and BSI. At the bottom of each page was a "Next" button, participants could only progress through the questionnaires if all the questions on the current page were completed. Intermittently through the survey pages appeared giving encouragements and details of progress. The last page of the survey included debrief information, for example, numbers to call or websites to access if they felt negatively affected. There was also information regarding entering the prize draw, it was made clear that the email address they needed to supply would not be linked to their questionnaires in any way in order to maintain anonymity. Additionally they were informed that if they were to win, no details of the study would be mentioned in the winner's notification email so as to maintain confidentiality.

3. Extended Results

The extended results section details supplementary tests and data that were not provided in the journal paper. The supplementary data provides further details with regard to the demographic, completer vs non-completer information and DSH data. The tests carried out support the results by examining data integrity and checking the assumptions that underlie the various analyses that were conducted. The data considerations and testing procedures that are included within this section were derived with reference to the following texts: Field (2009), Pallant (2010) and Tabachnick and Fidell (2007).

3.1 Additional Data

Table 5.

Break down of DSH frequency

Form of DSH (N = 218)	Never %	Once %	More than Once %	Many Times %
Self-cutting	34.4	9.2	11.9	44.5
Burn with cigarette	83.0	7.3	6.9	2.8
Carved onto the skin	49.1	16.1	20.6	14.2
Bad scratching	36.2	10.6	23.9	29.4
Biting oneself	59.6	11.9	19.7	8.7
Rubbed sandpaper onto ones skin	83.5	9.2	6.0	1.4
Dripped acid onto ones skin	89.9	7.8	2.3	0
Rubbed bleach/oven cleaner onto ones skin	91.3	4.1	2.3	2.3
Stuck sharp object into the skin	48.6	11.0	26.6	13.8
Rubbed glass onto ones skin	74.8	9.2	7.3	8.7
Broken bones	94.5	2.8	1.4	1.4
Head banging	59.6	14.2	19.7	6.4
Stopped wound healing	44.0	8.3	24.3	23.4
Other	64.7	5.5	15.6	14.2
DSH leading to medical attention	79.8	7.3	9.2	3.7

3.2 Preliminary data analysis

All tasks required participants to respond via computer input, progression was dependant on completion of the current page of questions. Therefore data could only be missing from the point at which participants withdrew from the study. Missing data was coded 999. Data was excluded Pairwise in order to make optimum use of the data collected. The integrity of the data was assessed by checking for out-of-range values.

Histograms and box-plots were examined for all variables to check for outliers, which may distort statistics. Univariate outliers were identified from the DSHI and YSQ-S, each were check for accuracy of data entry. Checks found that outliers were considered to be part of the intended sample and were all within the parameters of the measures used. In order to check for the potential impact of the outliers, 5% trimmed means were checked for all variable (see table 6). The differences between the means were not considered different from the remaining distribution, so all cases were retained.

Table 6.

Mean and 5% trimmed mean for all variables

YSQ-S		BSI	
Emotional Inhibition		Anxiety	
Mean (SD)	3.36 (1.51)	Mean (SD)	58.14 (13.12)
Trimmed mean	3.36	Trimmed mean	58.23
Unrelenting Standards		Depression	
Mean (SD)	3.79 (1.38)	Mean (SD)	62.69 (11.91)
Trimmed mean	3.81	Trimmed mean	63.18
Entitlement		Hostility	
Mean (SD)	2.50 (1.13)	Mean (SD)	61.72 (11.88)
Trimmed mean	2.43	Trimmed mean	62.17
Insufficient Self Control		Interpersonal Sensitivity	
Mean (SD)	3.76 (1.40)		61.72 (11.88)
Trimmed mean	3.77	Mean (SD)	62.17
		Trimmed mean	

Vulnerability to Harm

Mean (SD) 3.03 (1.36)

Trimmed mean 3.00

Enmeshment

Mean (SD) 2.01 (1.12)

Trimmed mean 1.88

Subjugation

Mean (SD) 3.18 (1.41)

Trimmed mean 3.15

Self-Sacrifice

Mean (SD) 3.57 (1.24)

Trimmed mean 3.57

Mistrust / Abuse

Mean (SD) 3.65 (1.14)

Trimmed mean 3.67

Social Isolation

Mean (SD) 3.74 (1.55)

Trimmed mean 3.77

Defectiveness / Shame

Mean (SD) 3.34 (1.77)

Trimmed mean 3.33

Failure to Achieve

Mean (SD) 3.17 (1.63)

OCD

Mean (SD) 60.14 (11.60)

Trimmed mean 60.52

Paranoid Ideation

Mean (SD) 55.94 (11.60)

Trimmed mean 56.16

Phobic Anxiety

Mean (SD) 57.95 (12.16)

Trimmed mean 57.76

Psychoticism

Mean (SD) 59.66 (11.82)

Trimmed mean 59.87

Somatisation

Mean (SD) 57.50 (12.99)

Trimmed mean 57.54

Global Severity Index

Mean (SD) 61.49 (13.08)

Trimmed mean 62.02

Trimmed mean	3.13
Dependence	
Incompetence	
Mean (SD)	2.60 (1.22)
Trimmed mean	2.53
Emotional Deprivation	
Mean (SD)	3.12 (1.52)
Trimmed mean	3.09
Abandonment	
Mean (SD)	3.31 (1.67)
Trimmed mean	3.29
DSHI-S	
DSH Total	
Mean (SD)	10.12 (8.60)
Trimmed mean	9.51

3.2.1 Transformation of data

All data presented here was found to violate at least one of the assumptions needed to run parametric tests. The decision was made not to transform any of the data, but to use non-parametric analyses. Transforming data is not universally recommended as analysis is interpreted from the variables that are in it, transforming variables can make interpretation harder (Tabachnick & Fidell, 2007). The interpretation is considered to be particularly problematic if the scale on which the variable is measured is widely used, as seen by the BSI and to a lesser extent but increasingly the YSQ-S and the DSHI.

3.3 Supplementary testing for reported analyses

The following sections have been organised to parallel the journal article. Each section outlines assumption testing and any other supplementary analyses to that reported in the journal paper. Assumptions were tested to examine the appropriateness, generalisability and accuracy of analyses.

3.3.1 Relationships between DSH and EMS's

In response to the first research question, is there a relationship between DSH and EMS's? Correlations were carried out. Assumptions in the correlation between DSH total score and each of the 15 EMS's were tested as follows:

- DSH total score and scores of EMS's were measured at interval level.
- Independence of observations was assumed as all data came from different participants.
- DSH data: Histograms were generated and on inspection (as suggested by Pallant, 2010) it appeared that the distribution was not normal. Kolmogorov-Smirnov ($D(219) = .120, p < .001$) and Shapiro-Wilk ($D(219) = .926, p < .001$) both confirmed that the assumption of normality was not met. Z-scores for skew ($z = 4.56, p < .001$) were significant, supporting the assumption of non-normality, whilst Kurtosis ($z = .43, p < .05$) was non-significant.
- 15 EMS's data: Visual inspection of histograms suggested no distribution was normal, supported by the Kolmogorov-Smirnov and Shapiro-Wilk tests, D scores ranged from .08 to .184 and .822 to .976 respectively, and were all significant (maximum of $p < .004$)(see table 7 for details). The Skew and Kurtosis were calculated as shown in table 7.
- The assumption of Linearity was assessed via the inspection of bivariate scatterplots (Tabachnik & Fidell, 2007), which were considered to be normal. However, if the assumption of normality is not met and Spearman's Rho is adopted, linearity does not need to be met.

Table 7.

Illustrates the Kolmogorov-Smirnov and Shapiro-Wilk D scores and the Skew and Kurtosis z-scores for the 15 EMS's.

	Kolmogoro v-Smirnov (n = 175)	Shapiro- Wilk (n = 175)	Skew z- scores	Kurtosis z- scores
Unrelenting Standards	.085	.960	-0.54	2.93*
Entitlement	.128	.925	5.01*	1.15
Insufficient Self-Control	.080	.960	-0.23	2.93*
Enmeshment	.184	.822	8.10*	5.12*
Subjugation	.100	.958	.086	2.68*
Self-Sacrifice	.084	.976	0.71	2.17*
Emotional Inhibition	.109	.940	0.59	-3.53*
Social Isolation	.092	.941	0.82	-3.17*
Defectiveness Shame	.124	.899	0.55	-4.17*
Failure to Achieve	.125	.924	1.52	3.45*
Dependence Incompetence	.115	.940	3.02*	1.51
Vulnerability to Harm	.101	.953	1.80	-2.64*
Emotional Deprivation	.101	.937	0.88	-3.56*
Abandonment	.136	.918	0.86	-3.95
Mistrust Abuse	.114	.947	1.35	-3.10

Note: All Kolmogorov-Smirnov and Shapiro-Wilk scores were significant to maximum of $p < .004$. * Indicates more than 1.96 standard deviations

Due to the assumptions of normality being violated the Spearman's Rho correlation analyses was adopted.

3.3.2 Relationship between EMS and psychopathology (GSI)

The second research question, is there a relationship between EMS's and psychopathology? Was tested in two ways. Firstly using the total sum of YSQ-S raw scores for each participant and secondly the scores for each of the 15 EMS's.

Assumptions in the correlation between the YSQ-S total score, 15 EMS's scores and the GSI scores were tested as follows:

- The GSI score, YSQ-S total score and scores of each 15 EMS's were measured at interval level.
- Independence of observations was assumed as all data came from different participants
- YSQ-S total score: Histograms were generated and on inspection appeared to be normally distributed. Kolmogorov-Smirnov ($D(171) = .042, ns$) and Shapiro-Wilk ($D(171) = .987, ns$) both confirmed that the assumption of normality was met. Z-scores for skew ($z = -4.89, p < .001$) suggested that the data was negatively skewed, whilst Kurtosis ($z = -1.89, ns$) was non-significant.
- Individual EMS data: As reported in previous section.
- GSI data: Visual inspection of histograms suggested distribution was not normal. Kolmogorov-Smirnov ($D(169) = 2.25, p < .05$) and Shapiro-Wilk ($D(169) = .96, p < .05$) confirmed that the assumption of normality was not met. Z-score for skew ($z = -2.25, p < .05$) was significant, supporting the assumption of non-normality, whilst Kurtosis ($z = -1.1, p < ns$) was non-significant.

- The assumption of Linearity was assessed via the inspection of bivariate scatterplots (Tabachnik & Fidell, 2007), which were considered to be normal.

Additional Correlation Analyses

Relationship between DSH and psychopathology

Within the literature a number of psychological risk factors for DSH have been highlighted, in particular anxiety and depression (e.g. Boergers et al., 1998; Guertin et al., 2001; Hawton et al., 2002). In order to see how this data set related to the literature, additional correlations were carried out to assess the relationships between DSH and each of the nine psychological symptomatology, as assessed by the BSI. Results as shown in table 9.

3.3.3 Assumptions between DSH scores and the nine BSI symptomatology

Assumptions in the correlations between DSH total score and nine symptomatology were tested as follows:

- DSH total score and BSI scores were measured at interval level.
- Independence of observations was assumed as all data came from different participants.
- DSH data: As described in previous section.
- BSI data: Visual inspection of histograms suggested no distribution was normal, supported by the Kolmogorov-Smirnov and Shapiro-Wilk tests, D scores ranged from 0.80 to .134 and .944 to .977 respectively, and were all significant (maximum of $p < .05$)(see table 8 for details). The Skew and Kurtosis were calculated as shown in table 8.
- The assumption of Linearity was assessed via the inspection of bivariate scatterplots (Tabachnik & Fidell, 2007), which were considered to be normal.

- Due to the assumption of normality being violated the Spearman's Rho correlation analyses was adopted.

Table 8.

Illustrates the Kolmogorov-Smirnov and Shapiro-Wilk D scores and the Skew and Kurtosis z-scores for the BSI.

	Kolmogoro v-Smirnov (n = 169)	Shapiro- Wilk (n = 169)	Skew z- scores	Kurtosis z- scores
Global Severity Score	.08	.96	-2.25*	-1.10
Anxiety	.08	.96	-1.21	-2.50*
Depression	.08	.96	-2.06*	-1.63
Hostility	.07	.98	-0.82	-1.56
Interpersonal Sensitivity	.13	.95	-3.13*	-1.05
Obsessive Compulsive	.09	.97	-2.24*	-1.51
Paranoid Ideation	.11	.96	-1.98*	-1.27
Phobic Anxiety	.11	.95	-0.56	-2.69*
Psychotocism	.07	.96	1.41	-2.03*
Somatisation	.13	.94	-1.10	-2.91*

Note: All Kolmogorov-Smirnov and Shapiro-Wilk scores were significant to maximum of $p < .05$. * Indicates more than 1.96 standard deviations

3.4 Additional Analyses

3.4.1 Correlation findings of DSH and the nine BSI Symptomatology

Table 9 shows the correlations between DSH frequency, each of the nine symptomatology and the GSI. Out of the nine symptomatology tested, eight were most strongly related to DSH frequency, large positive correlation were demonstrated; Anxiety ($r = .659, n = 169, p < .01$), Depression ($r = .675, n = 169, p < .01$), Hostility ($r = .586, n = 169, p < .01$), Interpersonal Sensitivity ($r = .563, n = 169, p < .01$), Obsessive Compulsive ($r = .582, n = 169, p < .01$), Phobic Anxiety ($r = .552, n = 169, p < .01$), Psychoticism ($r = .689, n = 169, p < .01$), and Somatisation ($r = .534, n = 169, p < .01$). A moderate correlation was found with Paranoid Ideation ($r = .488, n = 187, p < .01$). Interestingly Psychoticism was found to have the strongest relationship with DSH, however, the definition of DSH used in this study excludes psychosis. As would be expected the GSI correlates highly with all nine symptomatology, which could suggest that the GSI is a good reflection of overall symptomatology/distress. In line with the literature, large relationships were found between psychological symptomatology and DSH.

The descriptive statistics show that 58% of the individuals that DSH were considered to be experiencing a clinical level of distress according to the GSI (score ≥ 63) at the time of completing the BSI. Due to the non-parametric nature of the data a χ^2 was carried out ($\chi^2(2, n=217) = 24.7, p = .001, \phi = .337$) which found a significant difference between the self-harmers who did and did not meet the clinical cut off for psychological distress.

Table 9

The relationship between DSH and nine psychological symptomatology.

	1	2	3	4	5	6	7	8	9	10	11
1. DSH											
2. Global Severity Index	.703**										
3. Anxiety	.659**	.896**									
4. Depression	.675**	.874**	.705**								
5. Hostility	.586**	.794**	.683**	.678**							
6. Interpersonal Sensitivity	.563**	.846**	.721**	.815**	.627**						
7. Obsessive Compulsive	.582**	.854**	.722**	.741**	.655**	.695**					
8. Paranoid Ideation	.488**	.775**	.646**	.677**	.699**	.729**	.633**				
9. Phobic Anxiety	.552**	.774**	.737**	.562**	.535**	.644**	.638**	.584**			
10. Psychoticism	.689**	.927**	.827**	.851**	.697**	.790**	.755**	.691**	.705**		
11. Somatisation	.534**	.815**	.763**	.605**	.627**	.551**	.685**	.574**	.673**	.715**	

** $p < .01$ (2-tailed)

3.5 Hierarchical Regression

In response to the third research question, can EMS's predict DSH? Hierarchical regression was utilised. The predictors were entered into the model in three steps; the step at which each predictor was entered was based on the relevant research (Field, 2006). Gender was entered in the first step. Throughout the research on adolescent DSH, being female has been identified as a considerable risk factor (e.g. De Leo & Heller, 2004; Hawton et al., 2002; Madge, et al., 2008), with only an extremely limited amount of studies identifying no difference in gender (Hilt et al. 2008). Psychopathology (GSI) was entered at the second step. Within the research DSH has been associated with a wide variety of psychopathology and overall, findings have shown an association between DSH and higher levels of symptomatology when compared to non-DSH groups (e.g. Guertin et al., 2001; Laye-Gindhu et al., 2005). However, it should be noted that many papers fail to report if the levels of distress reported are considered to be clinically significant. Finally, the 13 relevant EMS's were entered at the same time in the third step, having entered the known predictors in steps one and two, the new predictors are entered in step three (Field, 2006).

3.5.1 Testing of Assumptions

The assumptions were checked to establish potential generalisability of the regression model. These assumptions with the relevant tests are considered below:

- **Linearity and homoscedasticity:** Examination of residuals scatterplots provides a test of assumptions of normality, linearity and homoscedasticity between predicted DV scores and errors of prediction (Tabachnick & Fidell, 2007). A scatter-plot of standard residuals against standard predicted values was generated. The array of points were scattered evenly around the zero line. No curvature or funnelling was evident. The assumptions of analysis were deemed to be met.
- **Normality:** A histogram and normal probability plot of the residuals indicated that the residuals were roughly normal. The histogram fitted into the bell-

shaped curve and the probability plot showed little deviation from the line of normality.

- The number of cases was considered sufficient, calculated as suggested by Green (1991), assuming a medium relationship between IV's and DV, $\alpha = .05$ and $\beta = .20$, $N \geq 50 + 8m$ (where m is the number of IV's) for testing the multiple correlation and $N \geq 104 + m$ for testing individual predictors, i.e. $50 + (8)(15) = 170$ and $104 + 15 = 119$.
- Independent errors: In order to check that the residual terms were independent (uncorrelated), the Durbin-Watson test was utilised. A value of two is considered to suggest that the residual are uncorrelated (Field, 2006). The parameters of the assumption were met with a test score of 2.0.
- Multicollinearity: Correlations (see table 10) were checked for r values greater than .80, as recommended by Field (2006). No value exceeded this limit. Further checks for multicollinearity were carried out via the used of SPSS Collinearity statistics: Tolerance and Variance Inflation Factor. A Tolerance value below .1 is considered to be an indication of multicollinearity (Field, 2006), however, other authors have considered any value below .2 to be a more appropriate standard (Menard, 2001). All values met the .2 standard, as detailed in Table 11. A Variance Inflation Factor (VIF) of greater than 10 is considered to suggest multicollinearity (Myers, 1990), no value exceeded 10, see table 11.
- As previously discussed, there were no outlier values for any of the variables entered into the regression model. It was therefore concluded that the accuracy of the regression model was not compromised.

Table 10

Hierarchical Regression: Pearson's Product-Moment Correlation Coefficient of Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. DSH																
2. Gender	-.16**															
3. BSI (GSI)	.68**	-.24**														
4. Emotional Dep+	.57**	-.15*	.64**													
5. Abandonment	.47**	-.22**	.62**	.57**												
6. Mistrust Abuse	.50**	-.14*	.67**	.59**	.67**											
7. Social Isolation	.53**	-.11	.66**	.64**	.51**	.57**										
8. Defect/Shame+	.59**	-.19**	.72**	.74**	.65**	.66**	.66**									
9. Failure+	.47**	-.26**	.51**	.49**	.52**	.50**	.46**	.62**								
10. Depen/Incomp+	.51**	-.23**	.67**	.52**	.54**	.49**	.50**	.65**	.59**							
11. Vulnerability+	.56**	-.17**	.72**	.44**	.53**	.59**	.49**	.59**	.51**	.62**						
12. Subjugation	.46**	-.13**	.68**	.64**	.58**	.58**	.57**	.67**	.58**	.63**	.62**					
13. Self-Sacrifice	.43**	-.25**	.44**	.32**	.48**	.43**	.30**	.34**	.37**	.35**	.41**	.47**				
14. Emotional Inhib+	.38**	-.071	.61**	.56**	.40**	.58**	.57**	.62**	.35**	.47**	.51**	.55**	.23**			
15. Unrelent Stand+	.16*	-.13*	.24**	.19**	.27**	.23**	.29**	.19**	-.01	.08**	.18**	.18**	.37**	.23**		
16. Insuff self-cont+	.34**	-.13*	.50**	.43**	.38**	.48**	.41**	.45**	.42**	.53**	.53**	.53**	.24**	.46**	.00	

* $p < .05$ ** $p < .01$ (1-tailed) + = abbreviations used

Table 11

Results of Multicollinearity tests

Model	Collinearity Statistics	
	Tolerance	VIF
1. (Constant)		
Gender	1.00	1.00
2. (Constant)		
Gender	.944	1.10
BSI Global Severity Index	.944	1.10
3. (Constant)		
Gender	.85	1.18
BSI Global Severity Index	.26	3.87
Emotional Deprivation	.36	2.75
Abandonment	.41	2.44
Mistrust Abuse	.37	2.71
Social Isolation	.43	2.35
Defectiveness/Shame	.26	3.29
Failure to Achieve	.46	2.19
Dependence/Incompetence	.40	2.51
Vulnerability to Harm	.39	2.59
Subjugation	.35	2.86
Self-Sacrifice	.56	1.71
Emotional Inhibition	.47	2.13

Unrelenting Standards	.71	1.40
Insufficient self-control	.57	1.74

4. Extended Discussion

This part of the extended paper details points of discussion that were briefly covered in the journal paper.

4.1 Prevalence

Research investigating DSH in community samples of adolescents is relatively sparse in comparison to studies into clinical samples. The literature that exists has found inconsistencies with regard to prevalence. Lloyd-Richardson, Perrine, Dierker, and Kelley (2007) and Lundh et al. (2007) investigated 15 year old school children, reporting 46% and 66% respectively having endorsed DSH. The present study reported a prevalence of 83.5%, which is considerably higher than the existing findings, differences could be due to methodological differences. The methodology of both these studies was such that the adolescents completed anonymous self-report questionnaires whilst in a scheduled class, which could have resulted in the findings being compromised. Studies considering the risk factors associated with DSH have reported a number of school related risks (Brunner et al., 2007, De Leo & Heller, 2004), meaning a participant's perception of safety, or need to be socially acceptable within their current environment, may have led to skewed responses. Therefore these results could be either an over or under representation of the true prevalence. Research investigating community adolescents who DSH has commonly adopted this methodology, with most accessing the sample at school (e.g. Hawton et al., 2002; O'Connor et al., 2009; O'Connor, Rasmussen, Miles & Hawton, 2009).

A major difference, in the present study, is the use of online surveying, which can assure complete confidentiality and anonymity without the threat of consequence or repercussions which may be present within the school environment. Anonymity and self-report are both qualities that have been shown to be of paramount importance when collecting sensitive data from adolescents. (e.g., Aquilano & Losciuto, 1990; Embree & Whitehead, 1993). It additionally enables isolated groups to be accessed, suggesting these results are a closer reflection of the prevalence of DSH in the community. Caution must be applied, however, as lack of randomisation, due to the self-selecting nature of online surveying, means interpretation of results must be conservative (Koch & Schockman, 1998).

4.1.1 Measures

A higher rate of DSH may have been obtained within the present study due to the use of the DSHI (Gratz, 2001). This instrument explicitly asks about a large number of different DSH behaviours which could potentially serve to cue the memory. In contrast, a number of large scale surveys have used a single question to ascertain DSH, for example Hawton et al., (2002) and De Leo and Heller (2004), both finding lower prevalence rates than for example Lloyd-Richardson et al. (2007) and Lundh et al. (2007) who used multiple questions. Interestingly, Ross and Heath (2002), in a study of DSH among adolescents, found that 20.4% reported DSH according to the results of a questionnaire, whilst when the same participants were interviewed, a total of 13.9% of the participants were categorized as having actually self-harmed according to the definition. These findings were due to some adolescents responding positively to having self-harmed as they had felt they had done so mentally or undertaken risky behaviour, which despite the adolescent stating it was DSH, were discounted.

The present study highlights the benefits in using multiple questions to assess DSH, as it not only could enable a better reflection of the prevalence of adolescents who have self-harmed, but also gives an indication of the types of DSH that are most prevalent within this sample. It should be noted that the behaviours asked about in

the DSHI are not exhaustive and are not primarily based on reported behaviours of community adolescents. Therefore the DSHI may only capture some of the ways in which DSH is conceptualised within this sample.

4.1.2 DSH, self-cutting and mental health

General findings in the literature suggest that self-cutting is the most prevalent form of DSH, especially for females (Bjarehed & Lundh, 2008; Hawton et al. 2002; Lundh et al., 2007; Oldershaw, Grima, Jollant, Richards, Simic, Taylor, & Schmidt, 2009). In line with the literature, the present study found self-cutting to be the most prevalent form of DSH, which could, in part, be due to the disproportionate number of females who took part in the study. Bjarehed and Lundh (2008) reported that self-cutting had the weakest relationship with psychopathology than other forms of DSH. This study lends support to this in the finding that only 58% of those who reported DSH to have clinical levels of distress, as measured by the Brief Symptoms Inventory (Derogatis, 1993).

The findings that self-cutting is the most popular form of DSH, but not necessarily connected to a mental health issue, is not well explored in the literature. One possible explanation for the frequency of self-cutting is the media attention (i.e. a contagion effect) on this above other forms of DSH (Bjarehed & Lundh, 2008). Films such as *Girl Interrupted*, *Black Swan*, *28 Days* and *Secretary*, and television shows such as *Casualty* and *ER* have included self-cutting. Additionally, some high profile royalty, athletes, actors, singers and entertainers have openly talked about self-cutting, including Johnny Depp, Angelina Jolie, Megan Fox, Dame Kelly Holmes, Miley Cyrus, Drew Barrymore and Princess Diana. This hypothesis suggests that DSH is learnt-from-others via modelling and trends, which could be potentially where it starts.

Adler and Adler (2007), in a qualitative study of DSH supported the notion that self-cutting is not necessarily in response to mental health difficulties. A young adult that

they interviewed outlined a happy and uneventful childhood and made it clear that her self-cutting was not in response to “teenage angst” or “serious mental problems”, she went on to say:

“I think that it’s just, I like the way I feel when I do it. I like having it, just being able to think that I can cut later helps me sort of deal in the moment with things that might be stressful. I honestly can’t understand why people wouldn’t cut themselves”.

Adler and Adler (2007) concluded that there is now a contemporary self-harmers who are not driven by pathology, poor coping strategies, impulsivity, etc., but are people who make a lifestyle choice to consider, defer, and plan DSH behaviour. One could potentially conclude that the use of DSH when no psychopathology is present continues to serve the same functions i.e. affect regulation, whether by action or thought. However the role of the media combined with the addictive quality of DSH should not be underestimated.

4.2 Entitlement and Enmeshment

The present study found that DSH had a relationship between all but two of the EMS’s, Entitlement and Enmeshment. The Enmeshment EMS, in an adult, is characterised by excessive emotional involvement and closeness to one or more significant other. This would commonly be accompanied by the belief that one could not be happy or survive without the significant other, and accompanied by insufficient self-identity (Young et al., 2003). In childhood this EMS would be expected, as reliance on family members is largely a reality, making the maladaptive nature of this EMS in childhood questionable. Rijkeboer de Boo (2010) found that in a sample of 8 to 13 year olds, Enmeshment was unrelated to indicators of psychopathology, on the contrary, this EMS had strong positive relationships with ‘Positive Affectivity’ and ‘Effortful Control’. Thus concluding that in contrast to Young’s theory, Enmeshment cannot be considered maladaptive in childhood. One would not expect this EMS to become dysfunctional until late adolescence when some degree of autonomy is

expected. This EMS in adolescents sees overlap with Erikson's stages of psychosocial development, who in the fifth stage describes Identity vs. Confusion, during which an adolescent explores their independence and develops a sense of self. Without the proper encouragement and reinforcement, the adolescent will not develop a strong sense of self, feel dependent and out of control, leading to insecurity and confusion about themselves and the future (Erikson, 1950).

In order to hypothesise as to why Enmeshment is unrelated to DSH, one could consider how it is conceptually opposite to Emotional Deprivation, which is strongly related to DSH. Emotional Deprivation is characterised by deprivation of family involvement whilst Enmeshment is characterised by its excess, suggesting that family, even an over involved family, is a protective factor in the development of DSH during adolescence.

The Entitlement EMS in adulthood regards the belief that one is superior to others, entitled to special rights and privileges. It could potentially see a person wanting to dominate others and assert power, forcing one's point of view, controlling others behaviour in line with one's own desires, without empathy or concern for others. In childhood and adolescence one could potentially view this EMS as developing from an environment where the child was indulged or spoiled, therefore like the Enmeshment EMS, the Entitlement EMS may serve a protective function in the development of DSH during adolescents. This hypothesis is not entirely congruent with the limited literature on EMS's in adolescence. Interestingly, Van Vlierberghe et al. (2010) found Entitlement to be predictive of anxiety, which is considered a psychological risk factor for DSH. Therefore, one may question why, when females are more susceptible to anxiety disorders (Loeber & Keenan, 1994), the current sample includes significantly more females, and both are risk factors in DSH, the Entitlement EMS is unrelated. One explanation for the lack of association between DSH and Entitlement in the present study could be due to the role of gender. Welburn et al. (2002) found that females were lower on the Entitlement EMS than males, they considered this to be potentially due to females lacking a sense of

entitlement for having their own needs met. They hypothesised that cultural conditioning around gender roles meant that females take a more care-taking role, also seen in the Self-Sacrifice EMS.

Another explanation for the lack of association between DSH and Entitlement, when Entitlement has been found to predict anxiety, is that the fundamental beliefs underpinning Entitlement protect the individual from DSH.

4.3 EMS's and child development

The literature and research on the interaction between child development and the development of EMS's is extremely limited. To recap, EMS's are theorised to result from the interaction between temperament and childhood environment, in particular the child's interactions with caregivers (Kellogg & Young, 2006; Young *et al.*, 2003). These early life experiences are not necessarily based on trauma or mistreatment, for example an individual could develop a Dependence/Incompetence EMS via the experience of overprotective parenting (Young *et al.*, 2003). Nevertheless, all EMS's are destructive and considered to be born from noxious experiences that are repeated through childhood and adolescence.

Within the context of the present study, Vulnerability to Harm was found as predictive of DSH, whilst this EMS was not found to be related to DSH in an adult population. Within the adult sample, Social Isolation/Alienation was the only associated EMS. With this in mind, the role of adolescence could be considered as integral in EMS presentation and suggests that this potentially turbulent point in the lifespan sees some EMS's becoming salient that are not carried through to adulthood.

Adolescence is widely accepted as a difficult developmental period. Aristotle stated that youths "are heated by nature as drunken men by wine", Socrates described adolescence as a time when youths were inclined to "contradict their parents" and

“tyrannise their teachers” and Rousseau stated “as the roaring of the waves proceeds the tempest, so the murmur of rising passions announces the tumultuous change....keep your hand on the helm” he warns parents “or all is lost”. In 1904, Hall proposed that adolescence is inherently a time of storm and stress, the inevitability of which remains an open and controversial debate. Three key elements are included within the definition of storm and stress; conflict with parents, mood disruptions and risk behaviours (Arnett, 1999).

Research has found that conflict with parent’s increases during adolescence compared with pre-adolescence, with the intensity of the conflict at its highest in mid-adolescence (Laursen, Coy, & Collins, 1998). The reported conflict has been found to decline with less time spent together and less emotional closeness (Larson & Richards, 1994). The claim that adolescents experience more mood disruptions appears to hold some truth. Research suggests that adolescence is in fact a crucial period in the development of major depression. Hankin, Abramson, Moffitt, Silva, McGee, and Angell (1998) found the prevalence of major depression is four times higher in adolescence than in childhood. Larson and Richards (1994) attributed adolescent mood disruptions to environmental and cognitive factors, with adolescents experiencing multiple life changes and personal transitions (e.g. puberty, school changes, dating), combined with gaining more capacity to understand and envision threats to their well-being. Mood disruptions have been found to become more likely in adolescents with, for example, low popularity, poor school performance and parental divorce (Petersen, Compas, Brooks-Gunn, Stemmler, Ey, & Grant, 1993).

Finally, adolescents have been found to take part in a wide variety of risk behaviours, with greater rates than pre-adolescents or adults (Arnett, 1999). Some of these risk behaviours are considered pleasurable, whilst some have considerable consequences (drugs and alcohol, car accidents, sexual transmitted diseases, etc.), that may be experienced as difficult for the adolescent, and all the risk behaviours may be difficult for the parents. Brain imaging research has found that the

adolescent brain indeed show some signs of being more receptive to self-gratification, perhaps leading to increased social interactions and risk taking or novelty seeking behaviours. Evolutionarily these changes have been hypothesised to be in order to transition the adolescent from dependence to independence (Spear, 2000).

The storm and stress theory must be considered with care as even though there is some evidence to suggest that adolescence is a difficult time for some individuals, others may not experience adolescence as problematic. What could be drawn from the finding is that storm and stress is more likely to occur during adolescence than pre-adolescence and adulthood, and that biological changes are occurring during that time. Findings of research by Sun (2001) reported that it is the quality of the home environment which defines how an individual will experience adolescence, with a correlation between increased family disruptions and problems during adolescence.

One may conclude that individuals who are living within a disruptive family environment, resulting in a stormy and stressful experience of adolescence, are also the individuals for whom EMS's are developing and becoming reinforced. Potentially the interaction between problematic parenting and difficulties with adolescence may result in an increase of interactions which reinforce certain EMS's during this time. For example, an adolescent who becomes more argumentative during adolescence may induce increased aggression in a parent, resulting in the Vulnerability to Harm EMS becoming more salient and reinforced, potentially leading to the use of DSH as a coping strategy. As the adolescent transitions into adulthood and further cognitive and environmental changes take place, that EMS may be reinforced less and become less salient. The coping strategy remains and is used in response to the activation of different EMS's that are salient in accordance with the current environment (i.e. living independently).

This conclusion could be considered to lend support to Young's (1990) theory that the behaviour (i.e. DSH) is not part of an EMS but part of a coping strategy for an EMS, and further, the behaviour used to manage one EMS could be used to manage another EMS. The finding on EMS's in the present study, when looked at in the context of the similar study on adult DSH and EMS's (Castille et al., 2007), suggest that potentially some EMS's are salient and frequently activated during adolescence but are not activated in adulthood. Young's theory holds that an EMS is activated in response to a life event that the individual unconsciously perceives as being similar to a traumatic experience in childhood. From this, one could conclude that some EMS's develop in childhood and are reinforced through their youth into adulthood, whilst others are particularly reinforced during adolescence and are more specific to the current stage in life and environment. This would have implications in terms of using the trajectory of EMS's found in adolescence to predict certain psychopathology in adulthood. It further opens up questions around the stability of EMS's in adolescence and whether EMS's can be transient during this time.

4.4 DSH and Anger

The findings of the hierarchical regression highlighted both Subjugation and Self-Sacrifice as being predictive of DSH. Both these EMS's are located within the Other-directedness domain, it is theorised that a child with EMS's in this domain would not follow their own inclinations and restrain important aspects of themselves in order to obtain love and approval. Individuals with EMS's in this domain, particularly Subjugation, would probably experience a build-up of anger, manifested in maladaptive symptoms (Young et al., 2003) (e.g. passive-aggression, temper outbursts and DSH).

A considerable amount of research has identified emotional competence as being a crucial component in a child's psychological and social functioning (Cicchetti, Ackerman, & Izard, 1995; Eisenberg, Fabes, & Losoya, 1997; Saarni, 1999). Underlying this competence is the role of affect regulation, which has been found to be integral in the development and ongoing function of DSH (Chapman et al.,

2006). The findings of the present study, via interpretation of the presenting EMS's, has found that the repression and expression of anger is integral in the underlying mechanisms of DSH.

Anger has been associated with both internalising and externalising disorders, Zeman et al. (2002) in a sample of school aged children, examined the predictive relation between anger regulation and externalising and internalising symptoms. Regression analyses indicated that the inability to identify emotional states, the inhibition of anger, the dysregulated expression of anger, and maladaptive coping strategies for anger were significant predictors of internalising symptoms i.e. DSH. In support of this and more specifically, Laye-Gindhu and Schonert-Reichl (2004) reported significantly greater levels of maladjustment in anger control problems and the ability to tolerate anger discomfort in a sample of adolescent self-harmers. They additionally reported that the adolescents who DSH may manifest increased levels of hostility and anger, both intra and inter personally (Guertin et al., 2001; Ross and Heath, 2003).

More recently research has started examining the role of externalising psychopathology in DSH, for example conduct disorder and Attention Deficit Hyperactivity Disorder (ADHD), which included behaviours such as losing one's temper, anger and intentionally annoying behaviour (Dick, Viken, Kaprio, Pulkkinen, & Rose, 2005). Studies have been conducted among adolescent self-harmers from both inpatient and the community (Bjärehed & Lundh, 2008; Brunner et al., 2007; Hilt, Nock et al., 2008). Significant associations have been found between DSH and externalising behaviours in both these settings. Within inpatient settings, high rates of externalising disorders have been reported, with findings ranging from 24% (Jacobson, Muehlenkamp, Miller, & Turner, 2008) to 63% (Nock et al., 2006). Moreover, Sourander, Aromaa, Pihlakoski, Haavisto, Rautava, Helenius, et al. (2006) found parental reports of aggression and externalising problems among young adolescents in the community, were predictive of DSH three years later.

During adolescence, the role of anger in externalising and internalising disorders has been found to be significant. The present study lends particular support to the findings that the inhibition of anger (Zeman et al., 2002), as represented by the Subjugation and Self-Sacrifice EMS's, is a significant predictors of internalising symptoms, specifically DSH.

4.5 Further Clinical Implications

The current study has added support to Schema theory in that EMS's are present and retrievable in adolescents. A broad range of EMS's were found present in adolescents who DSH, these results have a number of clinical implications, particularly in light of this study being unique:

1. The strong associations found between DSH and EMS's highlights the importance of addressing EMS's when working with DSH. Young developed his model of EMS's due to a great dissatisfaction with cognitive behavioural therapy's (CBT) focus on automatic thoughts and symptoms (Young et al., 2003). Young strongly suggested a primary focus was given to EMS's during therapy, this was not to suggest that classic CBT is blind to underlying schemas, but Beck provided limited concrete handles to assess and tackle them (Van Vlierberghe et al., 2009). A criticism which could additionally be aimed at Attachment theory (Bowlby 1967), which as highlighted in the present paper, holds considerable overlap with Schema theory in understanding the development and content of EMS's in adolescents. Young's diverse schema taxonomy and the accompanying YSQ provide clinicians with valuable tools to identify and work with EMS's and core beliefs. Young has also outlined treatment guidelines to address each EMS, which could be effective in working with young people, via an integration of CBT or Attachment theory treatment protocols.
2. The broad range of EMS's found to be associated with DSH highlights the need to take an ideographic approach when working with an adolescent who self-harms. It is important not to assume that EMS's found to be salient for

an adolescent will still be causing that individual distress in adulthood. Highlighting the need for clinicians to be aware of environmental, social or biological transitions an individual might be experiencing and re-administer the YSQ-S in light of these changes.

3. As discussed, an ideographic approach is recommended when working with adolescents who self-harm, however, the results of the current research found four EMS's to be most commonly associated with DSH. Young et al. (2003) highlighted the typical presentation of an individual with each EMS, including particular problems which may impact on therapeutic engagement. For example, someone with a Self-Sacrifice schema may struggle to acknowledge or talk about their own needs, increasing the likelihood of disengagement. For a clinician knowledge of these common vulnerability factors may be useful in the early stages of the therapeutic process, and if addressed may increase the chances of successful therapy.
4. A finding of the present study was that DSH is a commonly used coping strategy for adolescents, which Schema Theory would broadly conclude is used to manage unbearable memories, emotions, cognitions, and bodily sensations associated with EMS's. In addition, associations were found between DSH and 13 of the 15 EMS's, from which one could conclude that this age group are experiencing a broad range of negative thoughts, emotions, memories, and bodily sensations resulting in distress. In response to this, and the prevalence rates of DSH in the wider literature, a proactive approach should be taken in working with both children and adolescents in the general community. It appears that assumptions should not be made with respect to children gaining an understanding of emotions and how to manage them within the home environment. Psychoeducation about emotions and their management could be introduced at an early age within the school environment (i.e. nursery, primary and secondary). Plus a more proactive approach to issues that commonly present in adolescents, for example body image and bullying, but also empowerment and peer support could be explicitly discussed and encouraged.

4.6 Further Limitations

A potential limitation of the present study is the reliance on self-report measures. This limitation could have been further exacerbated by the use of the YSQ-S in gaining a measure of EMS's. A number of criticisms could be applied to the YSQ-S, firstly in line with the theory that EMS's are unconsciously activated, one must question if inactivated EMS's can be measured reliably. One possible solution to this issue has been via the use of a semi-structured clinical interview to measure Young's EMS's (Sarin & Abela, 2003). This however would not be possible within the methodology adopted by the present study, but may be a consideration for future research.

A second criticism of the YSQ-S is the apparent discrepancy around the wording used in the YSQ-S, with respect to what it says it is measuring. For example, the statement "Most of the time, I haven't had someone to look after me or care deeply about everything that happens to me" and "For the most part, I have not had someone who really listens to me, understands me or is tuned into my needs and feeling". Both of these examples could potentially represent a statement of fact as opposed to a core belief about oneself, and as such leaves the YSQ open to criticism with regard to its ability to separate self-perception from EMS's or in fact psychopathology. As discussed within the journal paper, there appears to be some overlap between Beck's theory of specificity of cognitive content in various psychopathology and a number of the EMS's. Some of the EMS's could in fact be measuring psychopathology as opposed to EMS's/core beliefs, which would invalidate the theory that EMS's lead to psychopathology, as they would already represent psychopathology.

In addition, as previously highlighted, adolescence is thought to be a time of storm and stress, which includes heightened conflict, mood disruptions and risk taking. There is the potential that the YSQ, within the current sample, is picking up on negative thinking and emotions, in line with this turbulent time, as opposed to stable lifelong structures. Unfortunately, an alternative instrument for measuring

maladaptive schemas in young people is currently missing from the literature (Muris, 2006).

An additional limitation could potentially be generalisability of the findings. Due to the use of internet sampling it is extremely difficult to control who is taking part in the study. For example: 1) one can only assume that participants will be honest about their age and only take part if within the age range stipulated. 2) This study has focused on a community sample, however no measures were put in place to exclude any participant who may be currently living within an inpatient setting.

A final limitation is the lack of randomisation of the questionnaires. Each participant completed the questionnaires in the same order, being demographics, DSHI-S, YSQ-S and BSI. This length of the survey could have meant that participants were experiencing fatigue towards the end of the survey, leading to less thought and hastier answering. The lack of randomisation would mean the BSI would always be the questionnaire that suffered most from this fatigue, future studies should consider randomising questionnaires.

4.7 Future Research

Directions for future research have been intermittently suggested throughout this paper and within the journal article, however, presented here are some additional recommendations.

With the current research base regarding EMS's in adolescents lacking, the overarching recommendation would be for more research generally in this area to be carried out. More specifically the use of longitudinal designs is called for to investigate a number of queries with regard to the stability and trajectory of EMS's, giving further support to Schema theory. Examples of such research should measure the EMS's present in adolescents and in a follow-up, measure firstly if the same EMS's are still present in adulthood and secondly assess for psychopathology

to see if links between EMS's in adolescence and psychopathology in adulthood can be made.

The current research adopted a cross-sectional correlational design in order to create a model with regard to the interaction between DSH and EMS's. This approach provides a good starting point in understanding these interactions at a nomothetic level. Future research could adopt an individual case study methodology to explore this phenomenon, which could potentially add to the understanding of DSH by exploring the link between endorsed EMS's on the YSQ and the act of DSH.

The findings of this research have demonstrated the strong associations between the intensity of EMS's and frequency of DSH, which may suggest the utility of Schema therapy or an integrative approach utilising the schema model when intervening with this behaviour. This suggests two avenues for future research, firstly, protocols should be designed integrating Schema therapy with, for example, Attachment therapy to work with children and adolescents who DSH. Secondly, there is currently no research comparing a Schema therapy approach with alternative therapies in the treatment of DSH in adults or adolescents, excluding the use of Schema therapy with individuals with borderline personality disorder, where DSH is used as one of the outcome measures (Kellogg and Young, 2006). As discussed, a successful therapeutic intervention for DSH is at present sadly lacking, which highlights the need for further research in this area.

4.8 Critical Reflections

4.8.1 Theoretical

The use of Schema theory in this research posed a number of theoretical challenges. Firstly the lack of literature with regard to EMS's and DSH and EMS's and adolescents, on one hand gave me a sense of excitement that my research was exploring the unexplored. On the other hand I felt theoretically adrift. It became

apparent that Schema theory was potentially lifespan specific, or rather, underdeveloped in adolescence. This meant I found myself falling back on a well established child development model, being Attachment theory, which showed considerable overlap with Schema theory when applied to adolescents. This made me wonder what Schema theory could add that Attachment theory couldn't?

Through the process of my research I managed to bring some resolution to my confusion around how Schema theory is applicable to young people. However, this resolution retains an integrated approach, I found myself unable to totally break ties with the theoretical overlap with Attachment theory. My conclusions were based on the idea that Schema theory provides a language often lacking in attachment theory. Schema theory provides concrete labels and descriptions with associated treatment plans, that some people can find essential and incredibly useful in understanding their own behaviour.

4.8.2 Scientific

My epistemological position within this study falls within the post-positivist tradition, with the belief that there is a reality independent of the individual, but that direct access is limited or mediated by the "flawed human intellectual mechanism" (Guba & Lincoln, 1994). The present study attempted to gain a more accurate representation of "truth" via the use of objective standardised assessment tools, coming from the position that there is a truth to be discovered through the process of falsification.

I soon found myself feeling conflict about this epistemological stance, as whilst I was able to see a handful of objective shared truths emerging, an ocean of additional lesser shared truths/ investigated elements appeared to be diluting the picture. It appeared the post-positivist stance, which seems to dominate this phenomenology, was finding the very thing that it set out to find in most instances. On one hand I could appreciate how this epistemological position had resulted in a core understanding of this complex behaviour, on the other hand I questioned if this epistemology could capture the true complexity of adolescent DSH.

I further reflected on the use self-report measures in capturing self-harm, and felt particular doubt with regard to my choice of instrument. Firstly, I had had to compromise the data gathered in order not to overwhelm the participants with too many questions, which meant I was only able report on lifetime prevalence. Secondly, I had to assume that the measure accurately captured DSH in community adolescents, and that all DSH behaviours are conscious and therefore reported. I wonder at the benefits of adding a qualitative section to this research, in light of DSH being secretive and its ideographic nature, I am unconvinced it would add generalisable findings.

An element of DSH which captured my interest was the role of the culture, society and media in adolescent DSH. I reflected on the shifting patterns in society and the impact it is having on young people, I wonder if undertaking research from a social-constructivist stance would enrich our knowledge and give us a greater sense as to why this behaviour is increasing in young people.

4.8.3 Ethical

Carrying out this research presented me with a number of very real ethical dilemmas. Firstly the use of the internet for recruitment meant I was accessing social network sites and forums. On the Forums I was left feeling that I was intruding into some people's only source of support, but was able to maintain in my mind that my research could potentially help people like them in the future. I struggled more with the use of Facebook, adolescents sent me messages asking who I was and what I was doing, and despite my legitimate stance I was uncomfortable with engaging in a behaviour I feel I would discourage in my own child, due to the risks of sexual predators and bullies. I reflected on the BPS guidelines for internet research and felt that I adhered to the regulations, but wondered if the guidelines encompassed all the facets of internet recruitment.

An additional dilemma that I faced was the impact my survey could potentially have on a participant. Despite allowing myself to be convinced by current research and my adherence to BPS guidelines, I never truly felt comfortable with the lack of control I had over who was taking part and how they were left feeling following participation.

This concern extended to non-DSH participants and the potential ideas I was exposing them too. I wonder if this concern was exacerbated by the scientist-practitioner in me who wants to add to the knowledge base, but also having worked with adolescents who DSH, am extremely aware of its destructive nature, both to the individual and their wider system. My instinct is to reduce harm and increase well-being, creating an uncomfortable cognitive dissonance. In light of this I am interested in the concise nature of my debrief page, which I believe is a testament to my ambivalence.

In conclusion, I have found undertaking a piece of research extremely rewarding. I feel that I have learnt a tremendous amount about the research process and the many challenges it can present. Despite at times feeling overwhelmed by what is required of doctoral research and further what makes good research, I feel a great deal more confident at carrying out research in the future.

5. Extended References

Abela, J. R. Z. (2001). The Hopelessness Theory of Depression: A Test of the Diathesis–Stress and Causal Mediation Components in Third and Seventh Grade Children. *Journal of Abnormal Child Psychology*, 29(3), 241–254

Abramson, L.Y., Alloy, L.B., & Metalsky, G.I. (1988). The cognitive diathesis-stress theories of depression: Toward an adequate evaluation of the theories' validities. In L.B. Alloy (Ed.). *Cognitive Processes in Depression*. New York: Guilford Press.

- Adler, P. A., & Adler, P. (2007). The Demedicalisation of Self-Injury: From Psychopathology to Sociological Deviance. *Journal of Contemporary Ethnography*, 36, 537
- Ainsworth, M. D. S. (1963). The development of infant-mother interaction among the Ganda. In B. M. Foss (Ed.), *Determinants of infant behavior* (Vol. 2, pp. 67-112). London: Methuen.
- Ainsworth, M. D. S. (1967). *Infancy in Uganda: Infant care and the growth of love*. Baltimore: John Hopkins University Press.
- Allard, R., Marshall, M., & Plante, M. C. (1992). Intensive follow-up does not decrease the risk of repeat suicide attempts. *Suicide and Life Threatening Behaviour*, 22, 303-314.
- Alloy, L.B., Hartlage, S., & Abramson, L.Y. (1988). Testing the cognitive diathesis-stress theories of depression: Issues of research design, conceptualisation and assessment. In L.B. Alloy (Ed.). *Cognitive Processes in Depression*. New York: Guildford Press.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.). Arlington, VA: American Psychiatric Publishing

- Andover, M. S., Pepper, C. M., Ryabchenko, K. A., Orrico, E. G., & Gibb, B. E. (2005). Self-mutilation and symptoms of depression, anxiety, and borderline personality disorder. *Suicide Life-Threatening behaviour*, 35, 581–91.
- Aquilano, W. S., & Losciuto, L. A. (1990). Effects of interview mode on self-reported drug use. *Public Opinion Quarterly*, 54, 362–395
- Arlow, J. A. (1979). Metaphor and the Psychoanalytic Situation. *Psychoanalytic Quarterly*, 48, 363-358
- Arnett, J. J. (1999). 'Adolescent Storm and Stress Reconsidered', *American Psychologist*, 54(5), 317–26.
- Aroian, K. J., & Patsdaughter, C. A. (1989). Multiple-Method, Cross-Cultural Assessment of Psychological Distress. *The Journal of Nursing Scholarship*, 21(2), 90–93
- Atkinson, R., & Flint, J. (2001). Accessing Hidden and Hard-to-Reach Populations: Snowball Research Strategies. *Social Research Update*, 33
- Ayton, A., Rasool, H., & Cottrell, D. (2003). Deliberate self-harm in children and adolescents: Association with social deprivation. *European Child & Adolescent Psychiatry*, 12, 303–307
- Bandura, A., (1971). *Social Learning Theory*. New York: General Learning Press

Baral, I., Kora, K., Yuksel, S., & Sezgin, U. (1998). Self-Mutilating Behavior of Sexually Abused Female Adults in Turkey, *Journal of Interpersonal Violence*, 13, 427-437

Baranoff, J., Oei, T. P. S., Ho Cho, S., & Kwon, S. (2006). Factor structure and internal consistency of the Young Schema Questionnaire (Short Form) in Korean and Australian samples. *Journal of Affective Disorders*, 93, 133–140

Bartholomew, K., Kwong, M. J., & Hart, S. D. (2001). Attachment. In Livesley, W. J. (2001). *Handbook of Personality Disorders, Theory, Research, and Treatment*. New York: The Guilford Press

Beck, A. T. (1967). *Depression: Causes and Treatment*. Philadelphia: University of Pennsylvania Press.

Beck, A. T. (1991). Cognitive therapy as the integrative therapy. *Journal of Psychotherapy Integration*, 1, 191-198.

Beck, A. T., & Emery, G. (1985). *Anxiety Disorders and Phobias*. Cambridge, MA: Basic Books.

Beck, A. T., Freeman, A., & Pretzer, J. (1990). *Cognitive Therapy of Personality Disorders*. Guildford Press, New York.

Beck, A.T., Rush, A. J., Shaw, B.F., & Emery, G. (1979). *Cognitive Therapy of Depression*. New York: J Wiley & Sons.

Beck, A.T., Schuyler, D., & Herman, I. (1974). Development of Suicidal Intent Scales. In A.T. Beck, H.L.P. Resnik, & D.J. Lettieri (Eds.), *The prediction of suicide* (pp. 45–56). Philadelphia, PA: Charles Press.

Beckley, K. & Stopa, L. Schemas in Adolescents and their relationship to psychopathology, University of Southampton.

Best, R. (2009). Students who self-harm: A case study of prevalence, awareness and response in an English University. *Pastoral Care in Education*. 27(3), 165-203.

Birnbaum, M.H. (2004). Methodological and ethical issues in conducting social psychology research via the Internet. In C. Sansone, C.C. Morf & A.T. Panter (Eds.), *Handbook of methods in social psychology* (pp. 359–382). Thousand Oaks, CA: Sage.

Bjarehed, J., & Lundh, L. (2008). Deliberate Self-Harm in 14-Year-Old Adolescents: How Frequent Is It, and How Is It Associated with Psychopathology, Relationship Variables, and Styles of Emotional Regulation? *Cognitive Behaviour Therapy*, 37(1), 26–37

Boergers, J., Spirito, A., & Donaldson, D. (1998). Reasons for Adolescent Suicide Attempts: Associations with Psychological Functioning. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37(2), 1287-1293

Bowlby, J. (1969). *Attachment and Loss, Volume 1. Attachment*. New York: Basic Books.

Briere, J., & Gil, E. (1998). Self-mutilation in Clinical and General Population Samples: Prevalence, Correlates, and Functions. *American Journal of Orthopsychiatry*, 68, 609–620

British Psychological Society (2007). *Report of the Working Party on Conducting Research on the Internet: Guidelines for ethical practice in psychological research online*, Leicester: British Psychological Society.

Brown, M. Z., Comtois, K. A., & Linehan, M. M. (2002). Reasons for suicide attempts and nonsuicidal self-injury in women with borderline personality disorder. *Journal of Abnormal Psychology*, 111, 198–202.

Brown, L.K., Houck, C. D., Grossman, C. I., Lescano, C. M., & Frenkel, J. L. (2008). Frequency of adolescent self-cutting as a predictor of HIV risk. *Journal of Developmental and Behavioural Paediatric*, 29, 161 – 165

Brunner, R., Parzer, P., Haffner, J., Steen, R., Roos, J., Klett, M., & Resch, F. (2007). Prevalence and Psychological Correlates of Occasional and Repetitive

Deliberate Self-Harm in Adolescents. *Archives of Paediatrics & Adolescent Medicine*, 161(7), 641-649

Buchanan, T., Ali, T., Heffernan, T.M., Ling, J., Parrott, A.C., Rodgers, J. & Scholey, A.B. (2005). Non-equivalence of on-line and paper-and-pencil psychological tests: The case of the prospective memory questionnaire. *Behavior Research Methods*, 37, 148–154.

Buchanan, T., & Smith, J. L. (1999). Using the Internet for psychological research: Personality testing on the World Wide Web. *British Journal of Psychology* (1999), 90, 125-144

Byford, S., Knapp, M., Greenshields, J., Ukoumunne, O. C., Jones, V., Thompson, S., Tyrer, P., et al. (2003). Cost-effectiveness of brief cognitive behaviour therapy versus treatment as usual in recurrent deliberate self-harm: a decision-making approach. *Psychological Medicine*, 6, 977-986

Calvete, E., Estevez, A., de Arroyabe, E. L., & Ruiz, P. (2005). The schema questionnaire–Short form–Structure and relationship with automatic thoughts and symptoms of affective disorders. *European Journal of Psychological Assessment*, 21, 90–99.

Cassidy, J., & Shaver, P. (Eds.) (1999). *Handbook of Attachment: Theory, research, and clinical applications*. New York: The Guilford Press.

- Castille, K., Prout, M., Marczyk, G., Shmidheiser, M., Yoder, S., Howlett, B. (2007). The Early Maladaptive Schemas of Self-Mutilators: Implications for Therapy. *Journal of Cognitive Psychotherapy*, 21(1), 58-71.
- Cerutti, R., Manca, M., Presaghi, F., & Gratz, K. L. (2011). Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents. *Journal of Adolescence*, 34, 337–347
- Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy*, 44, 371–394
- Chapman, A. L., Specht, M.W., & Cellucci, T (2005). Borderline Personality Disorder and Deliberate Self-Harm: Does Experiential Avoidance Play a Role? *Suicide and Life-Threatening Behavior* 35(4), 388-399
- Cheng, H-L., Mallenckrodt, B., Soet, J., & Sevig, T. (2010). Developing a screening instrument and at-risk profile for non-suicidal self-injurious behavior in college women and men. *Journal of Counselling Psychology*, 57, 128-139.
- Chitsabesan, P., Harrington, R., Harrington, V., & Tomenson, B. (2002). Predicting repeat self-harm in children, how accurate can we expect to be? *European Child & Adolescent Psychiatry*, 12, 23–29

- Choudhury, N., Hicks, R. C., & Kreitman, N. (1973). Evaluation of an after-care service for parasuicide (attempted suicide) patients. *Social Psychiatry*, 8, 67-81.
- Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology*, 7, 1-10
- Claes, L., & Vandereycken, W. (2007). Self-injurious behavior: Differential diagnosis and functional differentiation. *Comprehensive Psychiatry*, 48, 137–144
- Coid, J. W. (1993). An affective syndrome in psychopaths with borderline personality disorder? *British Journal of Psychiatry*, 162, 641–650.
- Collings, S. C., Fortune, S., Currey, N., Hawton, K., Wang, J., & Slim, B. (2011). Media influences on suicidal behaviour: An interview study of young people in New Zealand. Auckland: *National Centre of Mental Health Research*, Information and Development.
- Conoley, J. C., & Kramer, J. J. (1989). The Tenth Mental Measurements Yearbook. Lincoln NE: University of Nebraska Press
- Craik, J. (1994). *The face of fashion: Cultural studies in fashion*. London: Routledge.

- Crick, N. R., & Zahn-Waxler, C. (2003). The development of psychopathology in females and males: Current progress and future challenges. *Developmental Psychopathology*, 15, 719–742.
- Croog, S. H., Levine, S., Testa, M. A., Brown, B., Bulpitt, C. J., Jenkins, C. D., & Williams, G. H. (1986). The effects of antihypertensive therapy on the quality of life. *New England Journal of Medicine*, 314(26), 1657-1664.
- Crowe, M., & Bunclark, J. (2000). Repeated self-injury and its management. *International Review of Psychiatry*, 12(1), 48-53.
- Daldin, H. J. (1988). A contribution to the understanding of self-mutilating behavior in adolescence. *Journal of Child Psychotherapy*, 14, 61–66.
- De Leo, D., & Heller, T. S. (2004). Who are the kids who self-harm? An Australian self-report school survey. *Medical Journal of Australia*, 181, 140–141.
- Derogatis, L. R. (1977). *SCL-90 Manual: Scoring, Administration and Procedures for the SCL-90*. Baltimore: Clinical Psychometrics Research.
- Derogatis, L. R. (1993). *Brief Symptom Inventory: Administration, Scoring and Procedures Manual*. Baltimore: Clinical Psychometrics Research.

- Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: an introductory report. *Psychological Medicine*, 13, 595-605
- Derogatis, L. R., Rickels, K., & Rock, A. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. *British Journal of Psychiatry*, 128, 280-289.
- Derogatis, L. R., & Spencer, P. M. (1982). *Administration and procedures: BSI Manual I*. Baltimore: Clinical Psychometric Research
- Deykin, E. Y., Hsieh, C., Joshi, N., & McNamara, J. J. (1986). Adolescent suicide and self-destructive behaviour: Results of an intervention study. *Journal of Adolescent Health Care* 7, 88-95.
- Dick, D. M., Viken, R. J., Kaprio, J., Pulkkinen, L., & Rose, R. J. (2005). Understanding the Covariation among Childhood Externalizing Symptoms: Genetic and Environmental Influences on Conduct Disorder, Attention Deficit Hyperactivity Disorder, and Oppositional Defiant Disorder Symptoms. *Journal of Abnormal Child Psychology*, 33(2), 219-229
- Doctors, S. (1981). The symptom of delicate self-cutting in adolescent females: A developmental view. In S. C. Feinstein, J. G. Looney, A. Z. Schwartzberg, & A. D. Sorosky (Eds.), *Adolescent psychiatry* (Vol. 9, pp. 443–460). Chicago: University of Chicago Press

- Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *The Journal of the American Medical Association*, 286, 3089–3096
- Dulit, R. A., Fyer, M. R., Leon, A. C., Brodsky, B. S., & Frances, A. J. (1994). Clinical correlates of self-mutilation in borderline personality disorder. *American Journal of Psychiatry*, 151, 1305–1311.
- Eaves, G., & Rush, A. J. (1984). Cognitive patterns in symptomatic and remitted unipolar major depression. *Journal of Abnormal Psychology*, 93, 31-40.
- Eckersley, R. (1993). Failing a generation: The impact of culture on the health and wellbeing of youth. *Journal of Paediatric Child Health*, 29(1), 16–19.
- Eisenberg, N., Fabes, R. A., Losoya, S. (1997). Emotional responding: Regulation, social correlates, and socialization. In: P. Salovey, & D. J. Sluyter (Eds.). *Emotional development and emotional intelligence: Educational implications*. New York: Basic books
- Embree, B. G., & Whitehead, P. C. (1993). Validity and reliability of self-reported drinking behaviour: dealing with the problem of response bias. *Journal of Studies on Alcohol and Drugs*, 54, 334–344

Emerson, L. E. (1914). A preliminary report of psychoanalytic study and treatment of a case of self-mutilation. *Psychoanalytic Review*, 1, 41-52

Erikson, E. H. (1950). *Childhood and Society*. New York, NY: W. W. Norton & Company

Ettlinger, R. (1975). Evaluation of suicide prevention after attempted suicide. *Acta Psychiatrica Scandinavica*, 260, 1-125.

Evans, E., Hawton, K., & Rodham, K. (2005). In what ways are adolescents who engage in self-harm or experience thoughts of self-harm different in terms of help-seeking, communication and coping strategies? *Journal of Adolescence*, 28(4), 573-587.

Evans, K., Tyrer, P., Catalan, J., Schmidt, U., Davidson, K., Dent, J., Tata, P., Thornton, S., Barber, J., & Thompson, S. (1999). Manual-assisted cognitive-behaviour therapy (MACT): a randomized controlled trial of a brief intervention with bibliotherapy in the treatment of recurrent deliberate self-harm. *Psychological Medicine*, 29(1), 19 - 25

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral and biomedical sciences. *Behavior Research Methods*, 39, 179-191.

Favazza, A. R. (1992). Repetitive self-mutilation. *Psychiatric Annals*, 22, 60-63.

Favazza, A. R. (1998). The coming of age of self-mutilation. *Journal of Nervous Mental Disorders*, 186: 259–268.

Favazza, A. R., & Conterio, K. (1989). Female habitual self-mutilation. *Acta Psychiatrica Scandinavica*, 79, 283–289.

Festinger, L. A. (1978). *Theory of cognition*. Evanston, IL: Row, Peterson.

Field, A. (2009). *Discovering Statistics Using SPSS (Introducing Statistical Methods series)* Sage: London

Firestone, R. W., & Seiden, R. H. (1990). Suicide and the continuum of self-destructive behavior. *Journal of American College Health*, 38, 207–213.

Fliege, H., Lee, J., Grimm, A., & Klapp, B. F. (2009). Risk factors and correlates of deliberate self-harm behavior: A systematic review. *Journal of Psychosomatic Research*, 66, 477–493

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., Target, M., & Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, 64, 22–31.

Freud, A. (1958). Adolescence. In R. S. Eissler et al. (Eds.), *Psychoanalytic study of the child*. New York: International University Press.

Freud, S. (1905). Three essays on the theory of sexuality. In J. Strachey (Ed. & Trans.), *The standard edition of the works of Sigmund Freud* (Vol. 7, pp. 125–245). London: Hogarth Press.

Friedman, M., Glasser, M., Laufer, E., Laufer, M., & Wohl, M. (1972). Attempted suicide and self-mutilation in adolescence: Some observations from a psychoanalytic research project. *British Journal of Psychoanalysis*, 53, 179–183.

Gibbons, J. S., Butler, J., Urwin, P., & Gibbons, J. L. (1978). Evaluating of a social work service for self-poisoning patients. *British Journal of Psychiatry*, 133, 111–118.

Glaser, B. A., Campbell, L. F., Calhoun, G. B., Bates, J. M., & Petrocelli, J. V. (2002). The early maladaptive schema questionnaire-short form: A construct validity study. *Measurement and Evaluation in Counselling and Development*, 35, 2–13.

Glassman, L. H., Weierich, M. R., Hooley, J. M., Deliberto, T. L., & Nock, M. K., (2007). Child maltreatment, non-suicidal self-injury, and the mediating role of self-criticism. *Behaviour Research and Therapy*, 45, 2483–2490

Gould, M. S., Marrocco, F. A., Kleinmann, M., Thomas, J.G., Mostkoff, K., Cote, J., & Davies, M. (2005). Evaluating iatrogenic risk of youth suicide screening programs. *Journal of the American Medical Association*, 293, 1635–1643.

Gould, M. S., Shaffer, D., Fisher, P., & Garfinkel, R. (1998). Separation/divorce and child and adolescent completed suicide. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 155-162.

Grant, B. F. (1998). The Impact of a Family History of Alcoholism on the Relationship between Age at Onset of Alcohol Use and DSM–IV Alcohol Dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *NIAAA'S Epidemiologic Bulletin*, No. 39, 22(2)

Gratz, K. L. (2001) Measurement of deliberate self-harm: preliminary data on the Deliberate Self-Harm Inventory. *Journal of Psychopathology and Behavioral Assessment* 2001; 23:253–263

Gratz, K. L. (2003). Risk Factors for and Functions of Deliberate Self-Harm: An Empirical and Conceptual Review. *Clinical Psychology Science and Practice*, 10, 192–205

- Gratz, K. L., Conrad, S. D., & Roemer, L. (2002). Risk Factors for Deliberate Self-Harm Among College Students. *American Journal of Orthopsychiatry*, 72(1), 128–140
- Gratz, K. L., Latzman, R. D., Young, J., Heiden, L. J., Damon, J., Hight, T., & Tull, M. T. (2012). Deliberate Self-Harm Among Underserved Adolescents: The Moderating Roles of Gender, Race, and School-Level and Association With Borderline Personality Features. *Personality Disorders. Theory, Research, and Treatment*, 3(1), 39–54
- Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate behavioral research*, 26(3), 499-510.
- Griffiths, P., Gossop, M., Powis, B., & Strang, J. (1993). Reaching hidden populations of drug users by privileged access interviewers: methodological and practical issues. *Addiction*, 88(12), 1617–1626.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA: Sage.
- Guerreiro, D. F, Neves, E. L., Navarro, R., Mendes, R., Prioste, A., Ribeiro, D., Lila, T., Neves, A., Salgado, M., Santos, N., & Sampaio, D. (2009). Clinical features of adolescents with deliberate self-harm: A case control study in Lisbon, Portugal. *Neuropsychiatric Disease and Treatment*, 5, 611–617

Guertin, T., Lloyd-Richardson, E., Spirito, A., Donaldson, D., & Boergers, J., (2001). Self-Mutilative Behavior in Adolescents Who Attempt Suicide by Overdose. *Journal of American Academic Child and Adolescent Psychiatry*, 40(9), 1062-1069

Haines, J., & Williams, C. (1997). Coping and problem-solving of self-mutilators. *Journal of Clinical Psychology*, 53, 177–186.

Hall, G. S. (1904). *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education (Vols. I & II)*. New York: D.Appleton & Co

Hankin, B. L., Abramson, L. Y., Moffitt, T. E., Silva, P. A., McGee, R., & Angell, K. E. (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology*, 107(1), 128-140

Harrington, R. C. (1993). *Depressive disorder in childhood and adolescence*. Chichester: Wiley

Hasking, P. A., Coric, S. J., Swannell, S., Martin, G., Know-Thompson, H., & Frost, A. D. J. (2010). Brief Report: Emotional regulation and coping as moderators in the relationship between personality and self-injury. *Journal of Adolescence*, 33(5), 767-773.

- Haw, C., Hawton, K., Houston, K., & Townsend, E. (2001). Psychiatric and personality disorders in deliberate self-harm patients. *British Journal of Psychiatry*, 178, 48–54.
- Hawton, K., Fagg, J., Simkin, S., Bale, E. & Bond, A. (1997). Trends in deliberate self-harm in Oxford, 1985-1995. *British Journal of Psychiatry*, 171, 556-560.
- Hawton, K., Hall, S., Simkin, S., Bale, L., Bond, A., Codd, S., & Stewart, A. (2003). Deliberate self-harm in adolescents: a study of characteristics and trends in Oxford, 1990-2000, *Journal of Child Psychology and Psychiatry*, 44(8), 191–1198
- Hawton, K., McKeown, S., Day, A., Martin, P., O'Connor, M., & Yule, J. (1987). Evaluation of out-patient counselling compared with general practitioner care following overdoses. *Psychological Medicine*, 17, 751-761.
- Hawton, K., Rodham, K., & Evans, E. (2006). *By their Own Young Hand, Deliberate Self-Harm and Suicidal Ideas in Adolescents*. London: Jessica Kingsley Publishers.
- Hawton, K., Rodham, K., Evans, E., & Weatherall, R. (2002). Deliberate self-harm in adolescents: Self report survey in schools in England. *British Medical Journal*, 325, 1207-1211.

Hawton, K., Saunders, K. E. A., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *Lancet*, 379, 2373–2382.

Hawton, K., Simkin, S., Deeks, J. J., O'Connor, S., Keen, A., Altman, D. G., Philo, G., & Bulstrode, C. (1999). Effects of a drug overdose in a television drama on presentations to hospital for self-poisoning: time series and questionnaire study, *British Medical Journal*, 318(7189): 972–977.

Hay, C., & Meldrum, R. (2010). Bullying Victimization and Adolescent Self-Harm: Testing Hypotheses from General Strain Theory. *Journal of Youth and Adolescence*, 39(5), 446-459

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: an experiential approach to behavior change*. New York: Guilford Press.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64, 1152–1168.

Herpertz, S., Sass, H., & Favazza, A. (1997). Impulsivity in self-mutilative behavior: Psychometric and biological findings. *Journal of Psychiatric Research*, 31, 451–465.

Hesse, E. (1999). The adult attachment interview: Historical and current perspectives. In J. Cassidy and P. Shavers (Eds.), *Handbook of Attachment: Theory, research, and clinical applications*, 395-433. New York: The Guilford Press.

Hilt, L. M., Cha, C. B., & Nolen-Hoeksema, S. (2008). Nonsuicidal Self-Injury in Young Adolescent Girls: Moderators of the Distress–Function Relationship. *Journal of Consulting and Clinical Psychology*, 76(1), 63–71

Hilt, L. M., Nock, M. K., Lloyd-Richardson, E. E., Mitchell, J., & Prinstein, M. J. (2008). Longitudinal Study of Nonsuicidal Self-Injury among Young Adolescents: Rates, Correlates, and Preliminary Test of an Interpersonal Model. *The Journal of Early Adolescence*, 28, 455

Himber, J. (1994). Blood rituals: Self-cutting in female psychiatric inpatients. *Psychotherapy*, 31, 620–631

Huband, N., & Tantam, D. (2000). Attitudes to self-injury within a group of mental health staff. *British Journal of Medical Psychology*. 73(4), 495–504

Internet World Stats: Usage and Population Statistics (2012), Retrieved November 22, 2013, from <http://www.internetworldstats.com/stats.htm>

- Jacobson, C. M., Muehlenkamp, J. J., Miller, A. L., & Turner, J. B. (2008). Psychiatric Impairment among Adolescents Engaging in Different Types of Deliberate Self-Harm. *Journal of Clinical Child & Adolescent Psychology*, 37(2), 363-375
- James, A., Lai, F. H., & Dahl, C. (2004). Attention deficit hyperactivity disorder and suicide: a review of possible associations. *Acta Psychiatrica Scandinavica*, 110(6), 408–415
- Joiner, T. (2003). Contagion of suicidal symptoms as a function of assortative relating and shared relationship stress in college roommates. *Journal of Adolescence*, 26, 495–504.
- Jolly, J. B., & Dykman, R. A. (1994). Using self-report data to differentiate anxious and depressive symptoms in adolescents: Cognitive content specificity and global distress? *Cognitive Therapy and Research*, 18(1), 25-37
- Kann, L., Kinchen, S. A., Williams, B. I., Ross, J. G., Lowry, R., Grunbaum, J. A., & Kolbe, L. J. (1999). Youth risk behaviour surveillance, United States. *Morbidity and Mortality Weekly Report*, 49, 1–96.
- Katz, L. Y., Cox, B. J., Gunesekara, S., & Miller, A. L. (2004). Feasibility of Dialectical Behavior Therapy for suicidal adolescent inpatients. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43 (3), 276-282.

Kellogg, S. H., & Young, J. E. (2006). Schema Therapy for borderline personality disorder. *Journal of Clinical Psychology*, 62(4), 445–458.

Kennerley, H. (2004). Self-injurious behaviour. In J. Bennett-Levy, G. Butler, M. Fennell, et al. (Eds) (2004). *Oxford Guide to Behavioural Experiments in Cognitive Therapy*. Oxford: Oxford University Press.

Klonsky, E. D. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, 27, 226–239.

Klonsky, E. D. (2009). The functions of self-injury in young adults who cut themselves: Clarifying the evidence for affect regulation, *Psychiatry Research*, 166(2-3), 260–268

Klonsky, E. D., & Moyer, A. (2008). Childhood sexual abuse and non-suicidal self-injury: meta-analysis. *The British Journal of Psychiatry*, 192, 166–170

Klonsky, E. D., & Muehlenkamp, J. L. (2007). Self-Injury: A Research Review for the Practitioner. *Journal of Clinical Psychology*, 63(11), 1045–1056

Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate Self-Harm in a Nonclinical Population: Prevalence and Psychological Correlates. *American Journal of Psychiatry*, 160, 1501–1508

- Kobak, R. (1999). The emotional dynamics of disruptions in attachment relationships: implications for theory, research, and clinical interventions. In J. Cassidy and P. Shavers (Eds.), *Handbook of Attachment: Theory, research, and clinical applications*. New York: The Guilford Press.
- Koch, S., & Schockman, H. E. (1998). Democratizing Internet access in the lesbian, gay and bisexual communities. In B. Ebo, *Cyberghetto of Cybertopia? Race, Class and Gender on the Internet*, Westport, CT: Praeger.
- Kraemer, H. C., Stice, E., Kazdin, A., Offord, D., & Kupfer, D. (2001). How do risk factors work together? Mediators, moderators, and independent, overlapping, and proxy risk factors. *American Journal of Psychiatry*, 158, 848–56.
- Langbehn, D. R., & Pfohl, B. (1993). Clinical correlates of self-mutilation among psychiatric inpatients. *Annals of Clinical Psychiatry*, 5, 45–51.
- Larson, R., & Richards, M. (1994). *Divergent realities: The emotional lives of mothers, fathers, and adolescents*. New York: Basic Books
- Latimer, L., Covic, T., Cumming, S. R., & Tennant, A. (2009). Psychometric analysis of the Self-Harm Inventory using Rasch Modelling. *BMC Psychiatry*, 9, 53
- Laurent, J., & Stark, K. (1993). Testing the cognitive content-specificity hypothesis with anxious and depressed youngsters. *Journal of Abnormal Psychology*, 102, 226-37.

- Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering Changes in Parent-Child Conflict across Adolescence: A Meta-Analysis. *Child development*, 69(3), 817-832.
- Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal Self-Harm Among Community Adolescents: Understanding the “What’s” and “Whys” of Self-Harm. *Journal of Youth and Adolescence*, 34(5), 447–457
- Lazarus, R. S. (1982). Thoughts on the relations between emotion and cognition. *American Psychologist*, 37, 1019-1024.
- Lee, C. W., Taylor, G., & Dunn, J. (1999). Factor Structure of the Schema Questionnaire in a Large Clinical Sample. *Cognitive Therapy and Research*, 23(4), 441-451
- Leitenberg, H., Yost, L. W., & Carroll-Wilson, M. (1986). Negative cognitive errors in children: Questionnaire development, normative data and comparisons between children with and without self-reported symptoms of depression, low self-esteem, and evaluation anxiety. *Journal of Consulting and Clinical Psychology*, 54 (4), 528-536.
- Levy, K. N., Yeomans, F. E., & Diamond, D. (2007). Psychodynamic Treatments of Self-Injury. *Journal of Clinical Psychology*, 63(11), 1105–1120

Linehan, M. M. (1993a). *Cognitive behavioral treatment of borderline personality disorder*. New York: Guilford Press.

Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York: Guilford Press.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. L. (1991). Cognitive-Behavioral Treatment of Chronically Parasuicidal Borderline Patients. *Archives of General Psychiatry*. 48(12), 1060-1064

Linehan, M. M., Comtois, K. A., Murray, A. M., Brown, M. Z., Gallop, R. J., Heard, H. L., et al. (2006). Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of General Psychiatry*, 63, 757–766.

Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993). Naturalistic Follow-up of a Behavioral Treatment for Chronically Parasuicidal Borderline Patients. *Archives of General Psychiatry*, 50(12), 971-974

Lloyd-Richardson, E., Perrine, N., Dierker, L., & Kelley, M., (2007). Characteristics and functions of non-suicidal self-injury in a community sample of adolescents *Psychological Medicine*, 37(8), 1183–1192

- Loeber, R., & Keenan, K. (1994). The interaction between conduct disorder and its comorbid conditions: effects of age and gender. *Clinical Psychology Review*, 14, 497–523
- Lundh, L., Karim, J., & Quilisch, E. (2007). Deliberate self-harm in 15-year-old adolescents: A pilot study with a modified version of the Deliberate Self-Harm Inventory. *Scandinavian Journal of Psychology*, 48, 33–41
- Madge, N. Hewitt, A. Hawton, K. de Wilde, E. Corcoran, P. Fekete, S. van Heeringen, K. De Leo, D. and Ystgaard, M. (2008). Deliberate self-harm within an international community sample of young people: comparative findings from the Child and Adolescent Self-harm in Europe (CASE) Study. *Journal of Child Psychology and Psychiatry* 49(6), 667-677.
- Main, M. and Hesse, E. D. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. Greenberg, D. Cichetti, and M. Cummings, (Eds), *Attachment in the Preschool Years*. Chicago: Chicago University Press.
- Mangnall, J., & Yurkovich, E. (2008). A Literature Review of Deliberate Self-Harm. *Perspectives in Psychiatric Care*, 44(3), 175-184
- Menard, S. (2001). *Applied Logistic Regression Analysis*. London: Sage Publications Limited.

Menninger, K. A., (1935). A psychoanalytic study of the significance of self-mutilations. *Psychoanalytic Quarterly*, 4, 408-466

Mental Health Foundation (2006). The truth about self-harm, for young people and their friends and families. Camalot Foundation

Michel, K., Valach, L., & Waeber, V. (1994). Understanding deliberate self-harm: The patients' views. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 15(4), 172-178

Miller, F., & Bashkin, E. A. (1974). Depersonalization and self-mutilation. *Psychoanalytic Quarterly*, 43, 638–649.

Miller, A. L., Rathus, J. H., Linehan, M. M., Wetzler, S., & Leigh, E. (1997). Dialectical behaviour therapy adapted for suicidal adolescents. *Journal of Practical Psychiatry & Behavioral Health*, 3, 78–86.

Morgan, H. O. (1979). *Death Wishes*. Chichester: John Wiley.

Muehlenkamp, J. J. (2005). Self-injurious behavior as a separate clinical syndrome. *American Journal of Orthopsychiatry*, 75, 324–333

Muehlenkamp, J. J. (2006). Empirically supported treatments and general therapy guidelines for non-suicidal self-injury. *Journal of Mental Health Counselling*, 28, 166–185

Muris, P. (2006). Maladaptive Schemas in Non-Clinical Adolescents: Relations to Perceived Parental Rearing Behaviours, Big Five Personality Factors and psychopathological Symptoms, *Clinical Psychology and Psychotherapy*, 13, 405–413

Myers, R.H. (1990). *Classical and Modern Regression with Applications, 2nd edition*. Boston, MA: PWS Kent

National Collaborating Centre for Mental Health (2004). *Self-Harm: The Short-Term Physical and Psychological Management and Secondary Prevention of Self-Harm in Primary and Secondary Care*. Clinical Guideline 16. London: Gaskell & British Psychological Society

Nock, M. K., Joiner Jr., T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, 144, 65–72

- Nock, M. K., & Prinstein, M. J. (2004). A Functional Approach to the Assessment of Self-Mutilative Behavior. *Journal of Consulting and Clinical Psychology*, 72(5), 885–890
- Nock, M. K., Teper, R., & Hollander, M. (2007). Psychological Treatment of Self-Injury among Adolescents. *Journal of Clinical Psychology: In Session*, 63(11), 1081–1089
- O'Connor, R., Rasmussen, S., & Hawton, K. (2009). Predicting Deliberate Self-harm in Adolescents: A Six Month Prospective Study. *Suicide and Life Threatening Behaviour*, 34(4), 364-375
- O'Connor, R. C., Rasmussen, S., & Hawton, K. (2012). Distinguishing adolescents who think about self-harm from those who engage in self-harm. *The British Journal of Psychiatry*, 200(4), 330-335
- O'Connor, R. C., Rasmussen, S., Miles, J., & Hawton, K. (2009). Self-harm in adolescents: self-report survey in schools in Scotland. *The British Journal of Psychiatry*, 194, 68-72
- Oldershaw, A., Grima, E., Jollant, F., Richards, C., Simic, M., Taylor, L., & Schmidt, U. (2009). Decision making and problem solving in adolescents who deliberately self-harm. *Psychological Medicine*, 39(01), 95-104

- Padesky, C. A. (1994). Schema change processes in cognitive therapy. *Clinical Psychology & Psychotherapy*, 1, 267–278.
- Pallant, J. (2010). *SPSS Survival Manual: A step by step guide to data analysis using SPSS*. Maidenhead: Open University Press
- Pao, P. N. (1969). The syndrome of delicate self-cutting. *British Journal of Medical Psychology*, 42, 195–206.
- Pattison, E. M., & Kahan, J. (1983). The deliberate self-harm syndrome. *American Journal of Psychiatry*, 140, 867–72.
- Patton, G. C., Harris, R., Carlin, J. B., Hibbert, M. E., Coffey, C., Schwartz, M., & Bowes, G. (1997). Adolescent suicidal behaviours: a population-based study of risk. *Psychological Medicine*, 27(03), 715-724
- Petersen, A. C., Compas, B. E., Brooks-Gunn, J., Stemmler, M., Ey, S., & Grant, K. E. (1993). Depression in adolescence. *American Psychologist*, 48, 155–68.
- Peterson, J., Freedenthal, S., Sheldon, C., & Andersen, R. (2008). Nonsuicidal Self-Injury in Adolescents. *Psychiatry*, 5(11), 20–26
- Petrocelli, J. V., Glaser, B. A., Calhoun, G. B., & Campbell, L. F. (2001). Cognitive schemas as mediating variables of the relationship between the self-defeating

personality and depression. *Journal of Psychopathology and Behavioral Assessment*, 23, 183–191.

Piaget, J. (1948). *The moral judgment of the child*. Glencoe: Free Press

Raj, A. J., Kumaraiah, V., & Bhide, A. V. (2001). Cognitive-behavioural intervention in deliberate self-harm. *Acta Psychiatrica Scandinavica*, 104(5), 340–345

Rathus, J. H., & Miller, A. L. (2002). Dialectical behavior therapy adapted for suicidal adolescents. *Suicide and Life-Threatening Behavior*, 32, 146–157.

Rijkeboer, M. M., & de Boo, G. M. (2010). Early maladaptive schemas in children: Development and validation of the schema inventory for children. *Journal of Behaviour Therapy and Experimental Psychiatry*, 41, 102–109

Rodgers, J., Buchanan, T., Scholey, A. B., Heffernan, T. M., Ling, J., & Parrott, A. C. (2003). Patterns of drug use and the influence of gender on self-reports of memory ability in ecstasy users: A web-based study. *Journal of Psychopharmacology*, 17, 389–397.

Rosenthal, R. J., Rinzler, C., Wallsh, R., & Klausner, E. (1972). Wrist-cutting syndrome: The meaning of a gesture. *American Journal of Psychiatry*, 128, 47–52.

Ross, S., & Heath, N. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence*, 31(19), 67–77

Rudd, M. D., Joiner, T., & Rajab, M. H. (2001). *Treating suicidal behavior. An effective, time-limited approach*. New York: Guilford

Saarni, C. (1999). *The Development of Emotional Competence*. New York: Guilford

Sarin, S., & Abela, J. R. Z. (2003). The Relationship between Core Beliefs and a History of Eating Disorders: An Examination of the Life Stories of University Students. *Journal of Cognitive Psychotherapy*, 17(4), 359-374

Scarr, S. (1992). Developmental theories for the 1990s: Development and individual differences. *Child Development*, 63, 1–19.

Schaffer, H. R., & Emerson, P. E. (1964). The development of social attachments in infancy. *Monographs of the Society for Research in Child Development*, 29(3), 1-77.

Schmidt, N. B., Joiner Jr., T. E., Young, J. E., & Telch, M. J. (1995). The schema questionnaire: Investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. *Cognitive Therapy and Research*, 19(3), 295-321

- Shaw, S. N. (2002). Shifting conversations on girls' and women's self-injury: An analysis of the clinical literature in historical context. *Feminist Psychology*, 12(2), 191–219.
- Shaw, C., Brady, L., & Davey, C. (2011). *Guidelines for Research with Children and Young People*. London: National Children's Bureau.
- Shearer, S. L. (1994). Phenomenology of self-injury among inpatient women with borderline personality disorder. *The Journal of Nervous and Mental Disease*, 182, 524–526.
- Shek, D. T. L. (1998). A longitudinal study of the relations between parent-adolescent conflict and adolescent psychological well-being. *Journal of Genetic Psychology*, 53, 53-67.
- Sim, L., Adrian, M., Zeman, J., Cassano, M., & Friedrich, W. N. (2009). Adolescent Deliberate Self-Harm: Linkages to Emotion Regulation and Family Emotional Climate. *Journal of Research on Adolescence*, 19(1), 75–91
- Simpson, M. A. (1975). The phenomenology of self-mutilation in a general hospital setting. *Canadian Psychiatric Association Journal*, 20, 429–434.
- Skegg, K. (2005). Self-Harm. *Lancet*, 366, 1471–83

- Slee, N., Garnefski, N., Spinhoven, P., & Arensman, E. (2008). The Influence of Cognitive Emotion Regulation Strategies and Depression Severity on Deliberate Self-Harm. *Suicide and Life-Threatening Behavior*, 38(3), 274-286
- Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment *Behavior Research Methods, Instruments, and Computers*, 29, 496—505.
- Soloff, P. H., Lis, J. A., Kelly, T., Cornelius, J., & Ulrich, R. (1994). Self-mutilation and suicidal behavior in borderline personality disorder. *Journal of Personality Disorders*, 8, 257–267
- Sourander, A., Aromaa, M., Pihlakoski, L., Haavisto, A., Rautava, P., Helenius, H., & Sillanpää, M. (2006). Early predictors of deliberate self-harm among adolescents. A prospective follow-up study from age 3 to age 15. *Journal of Affective Disorders*, 93, 87–96
- Spear, P. (2000). The adolescent brain and age-related behavioural manifestations. *Neuroscience and Biobehavioral Reviews*, 24, 417–463.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development*, 48, 1184-1199.

- Stallard, P. (2007). Early Maladaptive Schemas in Children: Stability and differences between a Community and a Clinic Referred Sample. *Clinical Psychology and Psychotherapy Clinical Psychology and Psychotherapy*, 14, 10–18
- Stallard, P., & Rayner, H. (2005). The development and preliminary evaluation of a Schema Questionnaire for Children (SQC). *Behavioural and Cognitive Psychotherapy*, 33, 217–224.
- Stanley, B., Gameroff, M. J., Michalsen, V., & Mann, J. J. (2001). Are suicide attempters who self-mutilate a unique population? *American Journal of Psychiatry*, 158, 427-432
- Stein, D. J., & Young, J. E. (1993). *Cognitive Science and Clinical Disorders*. San Diego: Academic Press.
- Stern, D. N. (1985). *The Interpersonal World of the Infant*. New York: Basic Books
- Strong, M. (2000). *A bright red scream. Self-mutilation and the language of pain*. London: Virago (originally published in 1998).
- Stopa, L., Thorne, P., Waters, A., & Preston, J. (2001). Are the short and long forms of the Young Schema Questionnaire comparable and how well does each version predict psychopathology scores? *Journal of Cognitive Psychotherapy: An International Quarterly*, 15 (3), 253-272.

Sun, Y. (2001). Family environment and adolescents' well-being before and after parents' marital disruption: A longitudinal analysis. *Journal of Marriage and Family*, 63, 697–713

Suyemoto, K. L. (1998). The Functions of Self-Mutilation. *Clinical Psychology Review*, 18(5), 531–554.

Swann, W. B., Hixon, J. G., Stein-Seroussi, A., & Gilbert, D. T. (1990). The fleeting gleam of praise: Cognitive processes underlying behavioral reactions to self-relevant feedback. *Journal of Personality and Social Psychology*, 59, 17–26.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Edinburgh: Pearson Education Limited

Taiminen, T. J., Kallio-Soukainen, K., Nokso-Koivisto, H., Kaljonen, A., & Helenius, H. (1998). Contagion of Deliberate Self-Harm Among Adolescent Inpatients. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37(2), 211–217

Taliaferro, L. A., Muehlenkamp, J. J., Borowsky, I. W., McMorris, B. J., & Kugler, K. C. (2012). Factors Distinguishing Youth Who Report Self-Injurious Behavior: A Population-Based Sample. *Academic Paediatrics*, 12(3), 205-213

- Taylor, L., Oliver, C., & Murphy, G. (2011). The chronicity of self-injurious behaviour: A long-term follow-up of a total population study. *Journal of Applied Research in Intellectual Disabilities*, 24(2), 105–117.
- Thomson, S. (1997). Adaptive sampling in behavioural surveys, *NIDA Research Monograph*, 296-319
- Tillotson, K. (2008). Is cognitive behaviour therapy useful for people who self-harm? *Mental Health Practice*, 11(5), 28-31
- Tinbergen, N. (1963). On the aims and methods of ethology. *Zeitschrift für Tierpsychologie*, 20, 410-433.
- Turner, B. S. (1999). The possibilities of primitiveness: Towards a sociology of body marks in cool societies. *Body and Society*, 5, 39–50.
- Turner, H. M., Rose, K. S., & Cooper, M. J. (2005). Parental bonding and eating disorder symptoms in adolescents: The mediating role of core beliefs. *Eating Behaviors*, 6, 113-118.
- Tyrer, P., Thompson, S., Schmidt, U., Jones, V., Knapp, M., Davidson, K., Catalan, J., et al. (2003). Randomized controlled trial of brief cognitive behaviour therapy versus treatment as usual in recurrent deliberate self-harm: the POPMACT study. *Psychological Medicine*, 6, 969-976

- van der Kolk, B. A. (1996). The complexity of adaptation to trauma: Self-regulation, stimulus discrimination, and characterological development. In B. A. van der Kolk, A. C. McFarlane, & L. Weisaeth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 182–213). New York: Guilford Press.
- Van Meter, K. (1990). Methodological and Design Issues: Techniques for Assessing the Representatives of Snowball Samples, *NIDA Research Monograph*, 31-43.
- Van Vlierberghe, L. (2008). Towards a better understanding of psychopathology in adolescents: Cognitive vulnerability in obese and non-obese youngsters. Dissertation: Genth University.
- Van Vlierberghe, L., & Braet, C. (2007). Dysfunctional Schemas and Psychopathology in Referred Obese Adolescents Clinical Psychology and Psychotherapy, *Clinical Psychology and Psychotherapy*. 14, 342–351
- Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y., & Bogels, S. (2010). Maladaptive Schemas and Psychopathology in Adolescence: On the Utility of Young's Schema Theory in Youth. *Cognitive, Therapy and Research*, 34, 316–332

- Van Vlierberghe, L., Braet, B., & Goossens, L. (2009). Dysfunctional schemas and eating pathology in overweight youth: A case–control study. *International Journal of Eating Disorders*, 42(5), 437–442.
- Vogt, W. P. (1999) *Dictionary of Statistics and Methodology: A Non-technical Guide for the Social Sciences*. London: Sage.
- Waller, G., Meyer, C., Beckley, K., Stopa, L., & Young, J. E. (Unpublished). Core beliefs in adolescents: Normative scores on the Young Schema Questionnaire across ages, and comparison with adult norms.
- Waller, G., Meyer, C., & Ohanian, V. (2001). Psychometric properties of the long and short versions of the Young Schema Questionnaire: Core beliefs among bulimic and comparison women. *Cognitive Therapy and Research*, 25(2), 137-147
- Waller, G., Shah, R., Ohanian, V., & Elliott, P. (2001). Core beliefs in bulimia nervosa and depression: The discriminant validity of Young's Schema Questionnaire. *Behaviour Therapy*, 32, 139-153.
- Weishaar, M. E., & Beck, A. T. (2006). Cognitive theory of personality and personality disorders. In S. Strack (Ed.), *Differentiating normal and abnormal personality* (2nd Ed.). New York: Springer.

Weiss, R. (1991). The attachment bond in childhood and adulthood. In C. Parkes, J. Stevenson-Hinde, & P. Marris (Eds.) *Attachment Across the Life Cycle*, London: Routledge.

Welburn, K., Coristine, M., Dagg, P., Pontefract, A., & Jordan, S. (2002). The Schema Questionnaire—Short Form: Factor Analysis and Relationship between Schemas and Symptoms. *Cognitive Therapy and Research*, 26(4), 519-530

Wilkins, J., & Coid, J. (1991). Self-mutilation in female remanded prisoners: I. An indicator of severe psychopathology. *Criminal Behaviour and Mental Health*, 1, 247–267.

Williams, M. (1997). *Cry of Pain: Understanding Suicide and Self-Harm*. Harmondsworth: Penguin Psychology.

Winchel, R. M., & Stanley, M. (1991) Self-injurious behavior: A review of the behavior and biology of self-mutilation. *The American Journal of Psychiatry*, 148(3), 306-317.

World Health Organization. (1989). *Suicide and its prevention: The role of attitude and imitation* (Vol. 1). R. F. Diekstra (Ed.). Brill.

Yates, T. M., Carlson, E. A., & Egeland, B. (2008). A prospective study of child maltreatment and self-injurious behavior in a community sample. *Development and Psychopathology* 20, 651–671

Young, J. E. (1990). *Cognitive Therapy for Personality Disorders: A Schema-Focused Approach*. Professional Resource Exchange.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema Therapy: A Practitioners Guide*. London: Guilford Press

Ystgaard, M., Reinholdt, N. P., Husby, J., & Mehlum, L. (2003). Deliberate self-harm in adolescents. *Tidsskr Nor Laegeforen*, 123, 2241 – 2245

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.

Zajonc, R. B. (1984). On the primacy of affect. *American Psychologist*, 37, 117-123.

Zeman, J., Shipman, K., & Suveg, C. (2002). Anger and Sadness Regulation: Predictions to Internalizing and Externalizing Symptoms in Children. *Journal of Clinical Child & Adolescent Psychology*, 31(3), 393-398

Zlotnick, C., Mattia, J. I., & Zimmerman, M. (1999). Clinical correlates of self-mutilation in a sample of general psychiatric patients. *Journal Nervous Mental Disorders*, 187, 296–301

Zlotnick, C., Shea, T., Pearlstein, T., Simpson, E., Costello, E., & Begin, A. (1996). The relationship between dissociative symptoms, alexithymia, impulsivity, sexual abuse, and self-mutilation. *Comprehensive psychiatry*, 37(1), 12-16

Appendices

Appendix A – Journal for Publication

The Journal article was written for publication in the journal “Behaviour Research and Therapy”. The following link is for the “Authors Information Pack” as supplied by the journal:

www.elsevier.com/wps/find/journaldescription.cws_home/265?generatepdf=true

Appendix B - Participant Information Sheet – Presented online

Information Sheet

Study Title: Adolescents who Self-Harm: The Role of Early Maladaptive Schemas.

Louise Walker and Dr David Dawson would like to invite you to take part in a piece of research. Please take time to read the information below and think about whether or not you would like to take part, we recommend you take at least 24 to consider.

Also, you could talk to someone else about taking part if you think it would be a good idea, maybe a parent or close friend. You can always e-mail Louise or David if you have any questions about anything you have read, or if there is something you do not understand.

1. What is the purpose of this study?

The reason we are carrying out this study is because self-harm is a big problem for many young people. In order to help these young people, it is important that we try and understand as much as we can about self-harm. We can do this by finding out about all young people, which includes those who do self-harm and those who do not, and then look at similarities and differences. This study wants to find out if young people who do self-harm, have more negative thoughts about themselves and

their relationships with other people, than those who do not. The study will be part of a course, which is training Louise to become a Doctor of Clinical Psychology.

2. Who can take part in the study?

The study is for young people who are between the ages of 13 and 18 years old, both males and females. We hope to have at least 130 people take part, which may include you and your friends. This study is trying to find out about young people who self-harm, but it is important to find out about all young people so comparisons can be made. Therefore, the study is for all young people.

3. Do I have to take part?

No. You do not have to take part, even if you start the questionnaires and then change your mind, you can stop at any time. If you do stop but then decide later that you would like to take part, you can start again.

4. What will happen to me if I take part?

Taking part will involve completing four questionnaires online. You will first need to agree to take part by clicking on a box. You will be agreeing that you have read and understood the information, thought about it and decided to take part. You will then be asked to click a button, which will take you to the first of the four questionnaires. To complete the questionnaires will probably take you about 45 minutes. The first questionnaire will be all about you, for example your how old you are, if you are male or female, where you were born and so on. The other three will all be slightly different from each other, but each one will ask you to rate a statement. An example of this is: "I am Happy", and then you choose a number which best describes how often you are happy: 4 = Always, 3 = Sometimes, 2 = Often and 1 = Never. The second questionnaire is about how you see and think about yourself and your relationships with other people. The third questionnaire is about self-harm, the questions will be asking if you have ever self-harmed, how and how many times, and

so on. The final questionnaire is about mental health, so will ask questions about feelings, like sadness, being lonely or nervousness.

5. What are the possible risks of taking part?

A risk of taking part in this study is that you may become upset by some of the questions you will be asked. Two of the questionnaires will ask you questions on how you feel about yourself and the people close to you, the third will ask questions about self-harming. These questionnaires may bring up sad feeling in you or make you think about things you have never thought about before. If you do become upset whilst filling in the questionnaires, we suggest that you stop and close down the questionnaires. We will give you links to websites that you can visit and phone numbers you can call if you feel you need extra support.

6. What are the possible benefits of taking part?

You could win an Amazon.com voucher. At the end of the questionnaires will be the chance to enter a prize draw. All you will have to do is tell us your email address and after the study has finished, the winner will be chosen by picking an e-mail address out of a hat. If you decide to leave your e-mail address, it will not be attached to your questionnaire, this is to make sure we do not know whose questionnaires are whose. If you win, we will send you an email. The email will be from Louise but will not mention any information about the research or your taking part.

7. What if I change my mind?

If you start the questionnaires and then decide you do not want to take part that is OK. You can stop at any time simply by closing the window the questionnaires are in. If you do finish the questionnaires, you will be asked to press a button that says "submit" on it at the end. Once you have pressed that button, the questionnaires will be sent to Louise, but because you do not give your name, she will not be able to tell

whose is whose. Because of this, once you have pressed the submit button you will not be able to remove your questionnaires from the study. If you want to complain about any part of this study, you can e-mail either Louise or David.

8. Will my taking part in this study be kept private?

Because you will not be asked to give your name, there will be no way of telling which set of questionnaires are yours. Even if you give your e-mail address, it will be separate to your questionnaires. If you decide to take part, it will be completely private, even if you win the voucher, the email will not say that you took part in this research. All the questionnaires we collect will be stored on a USB stick that can only be accessed with a password. Only Louise will know the password so your questionnaire will be very secure. The USB stick will be kept safely for seven years and then destroyed.

9. What will happen to the results of this study?

The results will be used as part of a research report for a Clinical Psychology Doctorate qualification. We may also talk about the results at psychology conferences and have the report printed in psychology Journals. None of this information will identify who you are.

10. Who is running this study?

Louise Walker and Dr David Dawson are carrying out the study. Louise is a student on the Trent Clinical Psychology course and David is her supervisor.

Contact Details:

Louise Walker: 10197391@students.lincoln.ac.uk

Dr David Dawson: ddawson@post01.lincoln.ac.uk

Appendix C: Consent Form – presented online.

Consent Statement

Study Title: Adolescents who Self-Harm: The Role of Early Maladaptive Schemas.

Name of Researchers: Miss Louise Walker (*Chief Investigator*)

Dr Dave Dawson (*Principle Investigator*)

1. I agree that I have read and understood the information I have been given about this study. I have been given Louise Walker's email address, who I could have contacted if I had wanted to ask any questions. If I did ask any questions, I have had them answered.
2. I understand that I do not have to take part and I can stop at any time. However, once I have pressed the submit button at the end, and my questionnaires have been automatically sent to Louise, I will not be able to withdraw them from the study.
3. I understand that the information I give is private, and because I will not be asked to give my name, Louise will be able to tell which entry is mine. It will not be possible for Louise to shared my questionnaires with anyone involved in my care, i.e. parents, doctor, psychiatrist, school, etc. This includes me.
4. I agree that the information I give during this study can be added to the rest of the information collected and written up into a research report. A report that maybe printed in a psychology magazine, but only in a way that will not identify me.
5. Please check the box if you agree to take part in the above study.

☐

Appendix D – Demographic questionnaire

Demographic Questionnaire

1). Gender: Male Female

2). Age: 13 14 15 16 17 18

3). Country of Birth (or) Country you live in: (i.e. England, USA, etc.)

4). How many people live in your home including you: 2 3 4 5 6
7 8+

5) Family composition: I live with both my parents

 I live with just one of my parents (single parent family)

 I live with one parent and a stepparent

 I am adopted / I am fostered

 Other OR (2 parents, 1 parent, 1 parent and a partner,
other)

6). Religion Christian Jewish Muslim Hindu Buddhist

 Other: _____ Rather not say

7). Race White – British

 White - Irish

 White - Any other White background

 Mixed - White & Black Caribbean

 Mixed - White & Black African

 Mixed - White & Asian

 Mixed - Any other Mixed background

 Black or Black British - African

 Black or Black British – Caribbean

 Black or Black British - Any other Black background

 Asian or Asian British – Indian

 Asian or Asian British - Pakistani

 Asian or Asian British – Bangladeshi

Asian or Asian British - Any other Asian background

Chinese

Other ethnic group

8). School: I have left school

I do not attend school even though I should

I sometimes attend school

I am home tutored

I attend school as required

9). I have tried to commit suicide: Yes No

10). If you think you may want to withdraw your information in the next two weeks, please provide a password that will help me find your information. Please do not use your name, make your password as quirky as you can: -

Appendix E – Young's Schema Questionnaire

Modified form of the YSQ-S and permission for use.

YSQ-S

Developed by Jeffrey Young, Ph.D.

Developed by

Jeffrey Young, PhD. COPYRIGHT 1994 Cognitive Therapy Center.

20 East 56th St. Suite SA New York, NY 10022.

Unauthorized reproduction without written consent of the authors is prohibited.

INSTRUCTIONS: Listed below are statements that a person might use to describe himself or herself. Please read each statement and decide how well it describes you. When you are not sure, base your answer on what you emotionally feel not on what you **think** to be true. Choose the **highest rating from 1 to 6** that describes you and write the number in the space before the statement.

RATING SCALE

- 1 Completely untrue of me
- 2 Mostly untrue of me
- 3 Slightly more true than untrue
- 4 Moderately true of me
- 5 Mostly true of me
- 6 Describes me perfectly

1.____Most of the time, I haven't had someone to look after me or care deeply about everything that happens to me.

2.____In general, people have not been there to give me warmth, holding, and affection

3.____For much of my life, I haven't felt that I am special to someone.

4.____For the most part, I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.

5.____I have rarely had a strong person to give me good advice or direction when I'm not sure what to do.

*ed

6.____I find myself clinging to people I'm close to because I'm afraid they'll leave me,

7.____I need other people so much that I worry about losing them.

8.____I worry that people I feel close to will leave me or abandon me.

9.____When I feel someone I care for pulling away from me, I get desperate.

10.____Sometimes I am so worried about people leaving me that I drive them away.

*ab

11.____I feel that people will take advantage of me.

12.____I feel that I cannot let my guard down when I'm with other people, or else they will hurt me on purpose.

13.____It is only a matter of time before someone lets me down

14.____I am quite suspicious of other people's reasons for doing things.

15.____I'm usually on the lookout for people's reasons for doing things.

*ma

16.____I don't fit in.

17.____I'm basically different from other people.

18.____I don't belong; I'm a loner.

19.____I feel alienated from other people

20. ____I always feel on the outside of group

*si

21. ___ No person I am attracted to could love me once he/she saw my faults.
22. ___ No one I am attracted to would want to stay close to me if he/she knew the real me.
23. ___ I'm unworthy of the love, attention, and respect of others.
24. ___ I feel that I'm not loveable.
25. ___ I am too unacceptable in very basic ways to show the real me to other people,
- *ds
26. ___ Almost nothing I do at work (or school) is as good as other people can do.
27. ___ I'm not particularly good when it comes to achievement.
28. ___ Most other people are better than I am in areas of work and achievement.
29. ___ I'm not as talented as most people are at their work,
30. ___ I'm not as intelligent as most people when it comes to work (or school).
- *fa
31. ___ I do not feel able to get by on my own in everyday life.
32. ___ I think of myself as a person who depends on others, when it comes to everyday functioning.
33. ___ I lack common sense.
34. ___ My judgement cannot be relied upon in everyday situations
35. ___ I don't feel confident about my ability to solve everyday problems that come up.

*di

36.____I can't seem to escape the feeling that something bad is about to happen.

37.____I feel that a disaster (natural, criminal, financial or medical) could strike at any moment.

38.____I worry about being attacked.

39.____I worry that I'll lose all my money and become homeless/a 'down-and-out'

40.____I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a doctor

*vh

41.____I have not been able to separate myself from my parent(s), the way other people my age seem to.

42.____My parent(s) and I tend to be over involved in each other's lives and problems.

43.____It is very difficult for my parent(s) and me to keep private details from each other, without feeling let down or guilty.

44.____I often feel as if my parent(s) are living through me - I don't have a life of my own

45.____I often feel that I do not have a separate identity from my parents or partner.

*em

46.____I think if I do what I want, I'm only asking for trouble.

47.____I feel that I have no choice but to give in to other peoples' wishes, or else they will be unpleasant to me or reject me in some way.

48. ___ In relationships, I let the other person have the upper hand.

49. ___ I've always let others make choices for me, so I really don't know what I want for myself

50. ___ I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.

*sb

51. ___ I'm the one who usually ends up taking care of the people I'm close to.

52. ___ I am a good person because I think of others more than of myself.

53. ___ I'm so busy doing things for the people that I care about that I have little time for myself.

54. ___ I've always been the one who listens to everyone else's problems.

55. ___ Other people see me as doing too much for others and not enough for myself

*ss

56. ___ I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).

57. ___ I find it embarrassing to show my feelings to others,

58. ___ I find it hard to be warm and natural.

59. ___ I control myself so much that people think I have no feelings

60. ___ People see me as a tense person

*ei

61. ___ I must be the best at most of what I do; I can't accept second best.

62. ___ I try to do my best, I can't settle for "good enough."

63. ___ I must meet all my responsibilities.

64. ___ I feel there is constant pressure for me to achieve and get things done.

65. ___ I can't let myself off the hook easily or make excuses for my mistakes.

*us

66. ___ I have a lot of trouble accepting "no" for an answer when I want something from other people.

67. ___ I'm special and shouldn't have to accept many of the restrictions placed on other people.

68. ___ I hate to be limited or kept from doing what I want.

69. ___ I feel that I shouldn't have to follow the normal rules and conventions other people do,

70. ___ I feel that what I have to offer is of greater value than what others have to offer

*et

71. ___ I can't seem to discipline myself to complete routine or boring tasks.

72. ___ If I can't reach a goal, I become easily frustrated and give up.

73. ___ I have a very difficult time giving up short-term pleasures in order to reach long-term goals

74.____I can't force myself to do things I don't enjoy even when I know it's for my own good

75. I have rarely been able to stick to my resolutions.

Appendix F – Deliberate Self-Harm Inventory

Each question has a multiple choice of: Never
Once
More than Once
Many Times.

1. Have you ever intentionally (i.e., on purpose) cut your wrist, arms, or other area(s) of your body?
2. Have you ever intentionally burned yourself with a cigarette?
3. Have you ever intentionally carved words, pictures, designs or other marks onto your skin?
4. Have you ever intentionally badly scratched yourself, to the point where it left a scar or you were bleeding?
5. Have you ever intentionally bitten yourself, to the point that you broke your skin?
6. Have you ever intentionally rubbed sandpaper on your body?
7. Have you ever intentionally dripped acid onto your skin?
8. Have you ever intentionally used bleach, comet or oven cleaner to rub on your skin?
9. Have you ever intentionally stuck sharp objects such as needles, pins, staples, etc. into your skin? (not including tattoos, ear or body piercing, or needles used for drug use)
10. Have you ever intentionally rubbed glass onto your skin?
11. Have you ever intentionally broken your own bones?
12. Have you ever intentionally banged your head against something, to the point that a bruise appeared?
13. Have you ever intentionally stopped a wound from healing?

14. Have you ever done anything else to hurt yourself that was not asked about in this questionnaire?
15. If you answered yes to the question above (Q24), what did you do to hurt yourself?
16. Have you ever hurt yourself in any of the ways mentioned above that has led to having to stay in hospital or was bad enough that it needed medical attention i.e. from a doctor or nurse.

Appendix G – Brief Symptoms Inventory

Brief Symptom Inventory BSA

“Here I have a list of problems people sometimes have. As I read each one to you, I want you to tell me HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. These are the answers I want you to use. [*Hand card and read answers.*] Do you have any questions?”

- 0 = Not at all
- 1 = A little bit
- 2 = Moderately
- 3 = Quite a bit
- 4 = Extremely

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|--|-----------|
| 1. Nervousness or shakiness inside | 0 1 2 3 4 |
| 2. Faintness or dizziness | 0 1 2 3 4 |
| 3. The idea that someone else can control your thoughts | 0 1 2 3 4 |
| 4. Feeling others are to blame for most of your troubles | 0 1 2 3 4 |
| 5. Trouble remembering things | 0 1 2 3 4 |
| 6. Feeling easily annoyed or irritated | 0 1 2 3 4 |
| 7. Pains in the heart or chest | 0 1 2 3 4 |
| 8. Feeling afraid in open spaces or on the streets | 0 1 2 3 4 |
| 9. Thoughts of ending your life | 0 1 2 3 4 |

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|--|-----------|
| 10. Feeling that most people cannot be trusted | 0 1 2 3 4 |
| 11. Poor appetite | 0 1 2 3 4 |

- | | |
|--|-----------|
| 12. Suddenly scared for no reason | 0 1 2 3 4 |
| 13. Temper outbursts that you could not control | 0 1 2 3 4 |
| 14. Feeling lonely even when you are with people | 0 1 2 3 4 |
| 15. Feeling blocked in getting things done | 0 1 2 3 4 |
| 16. Feeling lonely | 0 1 2 3 4 |
| 17. Feeling blue | 0 1 2 3 4 |
| 18. Feeling no interest in things | 0 1 2 3 4 |

0 = Not at all
 1 = A little bit
 2 = Moderately
 3 = Quite a bit
 4 = Extremely

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|--|-----------|
| 19. Feeling fearful | 0 1 2 3 4 |
| 20. Your feelings being easily hurt | 0 1 2 3 4 |
| 21. Feeling that people are unfriendly or dislike you | 0 1 2 3 4 |
| 22. Feeling inferior to others | 0 1 2 3 4 |
| 23. Nausea or upset stomach | 0 1 2 3 4 |
| 24. Feeling that you are watched or talked about by others | 0 1 2 3 4 |
| 25. Trouble falling asleep | 0 1 2 3 4 |
| 26. Having to check and double check what you do | 0 1 2 3 4 |
| 27. Difficulty making decisions | 0 1 2 3 4 |

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|---|-----------|
| 28. Feeling afraid to travel on buses, subways, or trains | 0 1 2 3 4 |
| 29. Trouble getting your breath | 0 1 2 3 4 |
| 30. Hot or cold spells | 0 1 2 3 4 |
| 31. Having to avoid certain things, places, or activities because they frighten you | 0 1 2 3 4 |
| 32. Your mind going blank | 0 1 2 3 4 |
| 33. Numbness or tingling in parts of your body | 0 1 2 3 4 |
| 34. The idea that you should be punished for your sins | 0 1 2 3 4 |
| 35. Feeling hopeless about the future | 0 1 2 3 4 |
| 36. Trouble concentrating | 0 1 2 3 4 |

0 = Not at all
 1 = A little bit
 2 = Moderately

3 = Quite a bit

4 = Extremely

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|---|-----------|
| 37. Feeling weak in parts of your body | 0 1 2 3 4 |
| 38. Feeling tense or keyed up | 0 1 2 3 4 |
| 39. Thoughts of death or dying | 0 1 2 3 4 |
| 40. Having urges to beat, injure, or harm someone | 0 1 2 3 4 |
| 41. Having urges to break or smash things | 0 1 2 3 4 |
| 42. Feeling very self-conscious with others | 0 1 2 3 4 |
| 43. Feeling uneasy in crowds such as shopping or at a movie | 0 1 2 3 4 |
| 44. Never feeling close to another person | 0 1 2 3 4 |
| 45. Spells of terror or panic | 0 1 2 3 4 |

DURING THE PAST 7 DAYS, how much were you distressed by:

- | | |
|--|-----------|
| 46. Getting into frequent arguments | 0 1 2 3 4 |
| 47. Feeling nervous when you are left alone | 0 1 2 3 4 |
| 48. Others not giving you proper credit for your achievements | 0 1 2 3 4 |
| 49. Feeling so restless you couldn't sit still | 0 1 2 3 4 |
| 50. Feelings of worthlessness | 0 1 2 3 4 |
| 51. Feeling that people will take advantage of you if you let them | 0 1 2 3 4 |
| 52. Feeling of guilt | 0 1 2 3 4 |
| 53. The idea that something is wrong with your mind | 0 1 2 3 4 |

Appendix H – Ethics Approval



Lincoln, 15-9-2011

Dear Louise Walker,

The Ethics Committee of the School of Psychology would like to inform you that your project on “Adolescents who Self-Harm: The Role of Early Maladaptive Schemas” is:

- ☒ **approved**
- ☐ **approved subject to the following conditions:**
- ☐ **invited for resubmission, taking into account the following issues:**
- ☐ **is rejected. An appeal can be made to the Faculty Ethics Committee against this decision (cawalker@lincoln.ac.uk).**
- ☐ **is referred to the Faculty Ethics Committee. You will automatically be contacted by the chair of the Faculty Ethics Committee about further procedures.**

Good luck with your study.

Yours sincerely,

Emile van der Zee, PhD

Chair of the Ethics Committee of the School of Psychology
University of Lincoln, Department of Psychology
Brayford Pool
Lincoln LN6 7TS
United Kingdom
telephone: +44 (0)1522 886140
fax: +44 (0)1522 886026
e-mail: evanderzee@lincoln.ac.uk
<http://www.lincoln.ac.uk/psychology/staff/683.asp>

Appendix I – Debrief

Debrief

Thank you for taking part in this survey. If you have been affected by any of the contents and feel that you would like some support, please see some of the web links and phone numbers at the bottom of this page.

Childline

Web address: www.childline.org.uk

Phone number: 0800 11 11 (free to call)

Get Connected

Web address: www.getconnected.org.uk

Phone number: 080 8808 4994 (free phone)

The Samaritans:

Web address: www.samaritans.org

Phone number: UK - 08457 90 90 90

Republic of Ireland dial 1850 60 90 90 (these numbers are not free)

Sirius Project - Lists self-harm support groups

Web address: www.siriusproject.org/groups.html

Night Line - can be contacted if you would like to talk to someone.

www.nightline.ac.uk